

**THE CITY OF ALEXANDER CITY, ALABAMA
SPECIFICATIONS - CONTRACTUAL DOCUMENTS
SUGAR CREEK WASTEWATER TREATMENT PLANT
CLARIFIER #1 IMPROVEMENTS
BID #22-12**



6-8-22

**PREPARED BY
MUNICIPAL CONSULTANTS, INC.
200 CENTURY PARK SOUTH, SUITE 212
BIRMINGHAM, ALABAMA**

JUNE 2022

**THE CITY OF ALEXANDER CITY, ALABAMA
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TABLE OF CONTENTS

GENERAL

Advertisement for Bids.....	i
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BID DOCUMENTS

Information for Bidders	BD-1
Bid Bond	BD-4
Insurance Requirements Certification	BD-6
List of Material Suppliers and Equipment Manufacturers	BD-7
List of Subcontractors	BD-9
Basis of Payment	BD-10
Bid Proposal and Items of Work	BD-13
Alabama Immigration Law Compliance	BD-16
E-Verify Documentation and State Contractor's License	BD-17

CONTRACT DOCUMENTS

Notice of Award.....	CD-1
Notice to Proceed	CD-2
Performance Bond	CD-3
Payment Bond	CD-5
Certificate of Insurance	CD-7
Contract Agreement	CD-8

SPECIAL PROVISIONS

Starting and Completion Time and Liquidated Damages	SP-1
Standard of Quality for Base Bid	SP-3
Basis of Award	SP-4
Source of Funding	SP-5
Application for Tax Certificate	SP-6
Insurance Requirements.....	SP-7
Additional Insured (CG 20 10 11 85)	SP-8
Additional Insured (CG 20 10 10 01)	SP-9
Additional Insured (CG 20 37 10 01)	SP-10

SPECIAL PROVISIONS (Continued)

Additional Insured (CG 24 04 10 93)	SP-11
Waiver of Transfer of Rights of Recovery against Other to Us (CG 24 04 10 93)	SP-12
Consent of Surety, Release of Liens, and Payment of Debts and Claims	SP-13
Contractor's Affidavit, Release of Liens, and Payment of Debts and Claims (Form)	SP-14
Consent of Surety to Final Payment (Form).....	SP-15
Certification Requirements	SP-16
Submittal Certification Form	SP-17
Submittal Exceptions	SP-19
Certification of Proper Installation for	SP-20
Contractor's Personnel	SP-21

GENERAL SPECIFICATIONS

Definition of Terms	G-1
Proposal Requirements and Conditions	G-4
Award and Execution of Contract.....	G-8
Scope of Work.....	G-10
Control of Work.....	G-12
Control of Materials	G-26
Legal Relations and Responsibilities to Public	G-28
Prosecution and Progress	G-40
Project Completion	G-49
Warranty and Guarantees	G-52

BUILDING SPECIFICATIONS

Painting	S-1
----------------	-----

EQUIPMENT SPECIFICATIONS

All Equipment	E-1
Spiral Clarifier.....	E-6
Stamford Density Current Baffle	E-22
Launder Covers (Alternate Adder).....	E-26

GENERAL

ADVERTISEMENT FOR BIDS

Sealed proposals for the construction of **Sugar Creek Wastewater Treatment Plant Clarifier #1 Improvements** will be received by The City of Alexander City, Alabama (Owner) at the Alexander City Clerk's office, 281 James D. Nabors Drive, Alexander City, Alabama 35010 until **2:00 p.m.**, the prevailing time, on **June 23, 2022** or by mailing to P.O. Box 552, Alexander City, Alabama 35011 at which time and place they will be publicly opened and read. The bid is comprised of the following principal items and approximate quantities:

Demolition of Existing Clarifier #1 Equipment
New Clarifier #1 Equipment and Improvements
Miscellaneous Appurtenances and Work

Plans and Specifications may be inspected at the Alexander City Sewer Maintenance Department and Municipal Consultants, Inc. in Birmingham, Alabama and they may be obtained from the office of Municipal Consultants, Inc., 200 Century Park South, Suite 212, Birmingham, Alabama 35226, upon payment of **\$75.00**. Cost of plans and specifications are non-refundable. Plans and specifications may also be downloaded from the City of Alexander City at [www.alexandercityal.gov/rfps].

All Bidders must be responsible, meeting the criteria and requirements set forth in the specification documents. Prequalification of Bidders is not required.

This project is considered a "Public Works" project and is governed by competitive bid laws as contained in Title 39 of the Alabama Code. Bidders, subcontractors, suppliers, and Bond Agents should be familiar with this code.

The Owner reserves the right to reject any or all proposals and to waive technicalities. No Bidder may withdraw his bid within sixty days from the date set for receiving of the same. There will not be a Pre-Bid Conference for this Project.

This project is governed by the applicable bid laws and practices of the State of Alabama.

MUNICIPAL CONSULTANTS, INC.
Consulting Engineers
200 Century Park South
Suite 212
Birmingham, AL 35226

By: Curtis "Woody" Baird
Title Mayor

BID DOCUMENTS

GENERAL INFORMATION FOR BIDDERS

BIDS will be received by the City of Alexander City, Alabama (herein called the "OWNER"), at the Alexander City Clerk's office, 281 James D. Nabors Drive, Alexander City, Alabama 35010 until **2:00 p.m.**, the prevailing time, on **June 23, 2022**, and then at said office publicly opened and read aloud.

Each BID must be submitted in a sealed envelope, addressed to the City of Alexander City, Alabama at 281 James D. Nabors Drive, Alexander City, Alabama 35010. Each sealed envelope containing a BID must be plainly marked on the outside as BID for **Sugar Creek Wastewater Treatment Plant Clarifier #1 Improvements Bid #22-12** and the envelope should bear on the outside the name of the BIDDER, his address, his license number if applicable and the name of the Project for which the BID is submitted. If forwarded by mail, the sealed envelope containing the BID must be enclosed in another envelope addressed to the OWNER at P.O. Box 552, Alexander City, Alabama 35011.

All BIDS must be made on the required BID form with the entire bound documents intact. All blank spaces for BID prices must be filled in, in ink, or typewritten, and the BID form must be fully completed and executed when submitted. Only one copy of the BID form is required. A copy of the BIDDER'S State Contractor's License for the state in which the work will be performed must be attached to the BID DOCUMENTS.

The OWNER may waive any informalities or minor defects or reject any or all BIDS. Any BID may be withdrawn prior to the above scheduled time for the opening of BIDS or authorized postponement thereof. Any BID received after the time and date specified shall not be considered. No BIDDER may withdraw a BID within 60 days after the actual date of the opening thereof or after the Notice of Award is transmitted to the BIDDER, provided the Award is made within the 60 days herein described. Should there be reasons why the Contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the OWNER and the BIDDER.

BIDDERS must satisfy themselves of the accuracy of the estimated quantities in the BID Schedule by examination of the site and a review of the Drawings and Specifications including ADDENDA. After BIDS have been submitted, the BIDDER shall not assert that there was a misunderstanding concerning the quantities of WORK or of the nature of the WORK to be done.

The OWNER shall provide to BIDDERS prior to BIDDING, all information which is pertinent to, and delineates and describes, the land owned and rights-of-way acquired or to be acquired.

The CONTRACT DOCUMENTS contain the provisions required for the construction of the PROJECT. Information obtained from an officer, agent, or employee of the OWNER or any other person shall not affect the risks or obligations assumed by the CONTRACTOR or relieve him from fulfilling any of the conditions of the Contract.

Each BID must be accompanied by a BID BOND payable to the OWNER in the amount described in the General Specifications. As soon as the BID prices have been compared, the OWNER will return the BONDS of all except the three lowest responsible BIDDERS. When the Agreement is executed, the BONDS of the two remaining unsuccessful BIDDERS will be returned. The BID BOND of the successful BIDDER will be retained until the payment

BOND and performance BOND have been executed and approved, after which it will be returned. A cashier's check may be used in lieu of a BID BOND as described in the General Specifications.

A performance BOND and a payment BOND, each in the amount of 100 percent of the CONTRACT PRICE, with a corporate surety approved by the OWNER, will be required for the faithful performance of the Contract and as provided in the General Specifications.

Attorneys-in-fact who sign BID BONDS or payment BONDS and performance BONDS must file with each BOND a certified and effective dated copy of their power of attorney.

The party to whom the Contract is awarded will be required to execute the Agreement and obtain the performance BOND and payment BOND within fifteen (15) calendar days from the date when NOTICE OF AWARD is delivered to the BIDDER. The NOTICE OF AWARD shall be accompanied by the necessary Agreement and BOND forms. In case of failure of the BIDDER to execute the Agreement, the OWNER may at his option consider the BIDDER in default, in which case the BID BOND accompanying the proposal shall become the property of the OWNER.

The OWNER within fifteen (15) days of receipt of acceptable performance BOND, payment BOND and Agreement signed by the party to whom the Agreement was awarded shall sign the Agreement and return to such party an executed duplicate of the Agreement. Should the OWNER not execute the Agreement within such period, the BIDDER may by WRITTEN NOTICE withdraw his signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the OWNER.

The NOTICE TO PROCEED shall be issued within a reasonable time frame of the execution of the Agreement by the OWNER. Should there be reasons why the NOTICE TO PROCEED cannot be issued within such period, the time may be extended by mutual agreement between the OWNER and CONTRACTOR. If the NOTICE TO PROCEED has not been issued within a reasonable time frame or within the period mutually agreed upon, the CONTRACTOR may terminate the Agreement without further liability on the part of either party.

The OWNER may make such investigations as he deems necessary to determine the ability of the BIDDER to perform the WORK, and the BIDDER shall furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any BID if the evidence submitted by, or investigation of, such BIDDER fails to satisfy the OWNER that such BIDDER is properly qualified to carry out the obligations of the Agreement and to complete the WORK contemplated therein.

A conditional or qualified BID will not be accepted. The OWNER reserves the right to reject any BID that is submitted by a BIDDER that is determined by the OWNER to not be a responsible BIDDER or whose BID proposal is not responsive. In determining whether a BIDDER or BID is responsible and/or responsive, the OWNER reserves the right to also request and consider the following factors in Section III.2 of the General Specifications and/or the Special Provisions (if applicable).

Award will be made in concurrence with the Special Provisions "Award of Contract", the General Specifications, and any Supplemental General Conditions.

All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the PROJECT shall apply to the Contract throughout.

Each BIDDER is responsible for thoroughly inspecting the site and for reading and being thoroughly familiar with all the CONTRACT DOCUMENTS. The failure or omission of any BIDDER to do any of the foregoing shall in no way whatsoever relieve any BIDDER

from any obligation in respect to his BID.

Further, the BIDDER agrees to abide by the requirements under Executive Order No. 11246, as amended, including specifically the provision of the equal opportunity clause set forth in these Specifications if included herein.

The low BIDDER shall supply the names and addresses of major material SUPPLIERS and SUBCONTRACTORS when requested to do so by the OWNER in addition to those required in the Bid Documents. Either the act of not providing the names required with the submittal of the Bid Documents or the act of not providing such additional names that may be requested after Bids are received, will be grounds for the OWNER to disqualify the BIDDER for not being responsive.

This project is considered a "Public Works" project and is governed by competitive bid laws as contained in Title 39 (1997) of the Alabama Code. Bidders, subcontractors, suppliers, and Bond Agents should be familiar with this code.

A Pre-Bid conference for prospective BIDDERS will not be held. It shall be the responsibility of the bidders to have a thorough understanding of the plans, specifications, and other contract documents and to include all costs in their bids for fully complying with all requirements.

Contractor shall note. There were two (2) different advertisements run in the local paper and one advertisement run in 3 statewide papers for this project. One advertisement was run stating improvements to Clarifier #2 would be done. There is only one project for clarifier improvements to be completed at this time. The scope of work for this project consist of improvements to be completed on Clarifier #1.

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____
_____ as Principal, and _____ as
Surety, are hereby held and firmly bound unto The City of Alexander City, Alabama as
OWNER in the penal sum of _____ for the
payment of which, well and truly to be made, we hereby jointly and severally bind ourselves,
successors and assigns. Signed, this _____ day of _____, 20____. The Condition of
the above obligation is such that whereas the Principal has submitted to the Owner a certain
BID, attached hereto and hereby made a part hereof to enter into a contract in writing, for the
Sugar Creek Wastewater Treatment Plant Clarifier #1 Improvements Bid #22-12.

NOW, THEREFORE,

- (a) If said BID shall be rejected, or
- (b) If said BID shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said BID) and shall furnish a BOND for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said BID, then this obligation shall be void. Otherwise, the same shall remain in force and effect, it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the amount that is allowed by Alabama Code, Title 39 (1997) for Public Works projects.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its BOND shall be in no way impaired or affected by any extension of the time within

which the OWNER may accept such BID; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

Principal (L.S.)

Surety

By: _____

IMPORTANT - Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the Project is located.

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INSURANCE REQUIREMENTS CERTIFICATION

The Contractor selected for the Project will be required to provide insurance in full accordance with all the requirements of the Specifications. See the sections pertaining to insurance in the Special Provisions and in the General Specifications. Bidders shall ensure that if awarded the Project, the insurance provided will be in full accordance with all these requirements. This includes the exact endorsements and coverages as listed. No exceptions will be allowed.

The Bidder hereby certifies that he has provided all insurance requirements to his insurance provider for their careful review and pricing, and has verified that if his bid is accepted, all the insurance required by the Specifications, including the exact endorsements and coverages, will be provided. The Contractor also certifies that if the Contractor's current insurance provider will not provide the insurance required by the Specifications, then the Bidder has located another insurance provider for the Project that will issue insurance for the Project in full accordance with all requirements of the Specifications.

Finally, the Contractor certifies that he has included all costs necessary in his Bid to provide all insurance in full accordance with all the Specifications.

Contractor _____

By _____

Date _____

**THE CITY OF ALEXANDER CITY, ALABAMA
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SUGAR CREEK WASTEWATER TREATMENT PLANT
CLARIFIER #1 IMPROVEMENTS
BID #22-12**

LIST OF MATERIAL SUPPLIERS AND EQUIPMENT MANUFACTURERS

Bidders submitting a proposal are required to fully complete the following list of Material Suppliers and Equipment Manufacturers for their Base Bid. If this information is not clearly and properly provided, this will be grounds for the Owner to disqualify the Bidder for not being responsive. When a single Material Supplier or Equipment Manufacturer is listed as the "Base", the Contractor shall furnish that Material Supplier and/or Equipment Manufacturer. When two or more Material Suppliers and/or Equipment Manufacturers are listed as the "Base", the Contractor must provide only one of the Material Suppliers and/or Equipment Manufacturers listed. When an item is blank, the Contractor shall write in the Material Supplier or Equipment Manufacturer to be furnished under the "Base" proposal. In every case, only one Material Supplier or Equipment Manufacturer shall be provided for each material or equipment item. Once approved through submittals the Contractor shall not change the Material Supplier or Equipment Manufacturer without approval from the Owner.

Where the List of Material Suppliers and Equipment Manufacturers provides for substitute material suppliers and/or equipment manufacturers, the Bidder may, but is not required to, write in or circle a substitute material supplier or equipment manufacturer. The Contractor shall fulfill the requirements of these Specifications and particularly Special Provisions II and III. The bidder shall write in the amount of price reduction for the use of each such substitute indicated. In every case, only one substitute Material Supplier or Equipment Manufacturer shall be written in or circled for each material or equipment item. When a substitute Material Supplier or Equipment Manufacturer is offered by the Contractor and accepted by the Owner, the Contractor shall furnish and install the product of that Material Supplier or Equipment Manufacturer.

The award of the Contract will be based on the base Material Supplier(s) and/or Equipment Manufacturer(s) listed unless there are provisions for Alternate Deducts of Base Bid in Special Provisions, Section III and the Bid Schedule Items of Work. No substitute equipment or material shall be accepted unless it is approved by the Owner. The Contractor shall furnish and install the base materials or equipment he has indicated for any or all of the substitutes rejected.

If the information required above is not clearly and properly provided, this will be grounds for rejecting that bidder. Failure to furnish and install the indicated base or indicated and approved substitute material and equipment from the suppliers and manufacturers shall constitute default of the Contract.

LIST OF MATERIAL SUPPLIERS AND EQUIPMENT MANUFACTURERS

The base Material Supplier or Equipment Manufacturer is listed in bold directly to the right of the type of material or equipment.

Material or Equipment		Name of Supplier or Manufacturer
1. Clarifier		Base: <u>WesTech, Walker, Ovivo, Evoqua</u>
	Substitute	_____
2. Launder Covers (Adder)		Base: <u>NEFCO</u>
	Substitute	_____

The Bidder further certifies that if his bid is accepted, the base Material Suppliers and Equipment Manufacturers he has indicated herein will be awarded contracts for supply of their products unless deductive substitutes are provided as specified herein and approved by the Owner. The Bidder further certifies that deductive substitute Material Suppliers and Equipment Manufacturers he has properly indicated that are approved by the Owner will be awarded contracts for supply of their products.

Bidder _____

By _____

Date _____

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LIST OF SUBCONTRACTORS

Contractors submitting a proposal are required to list in the spaces provided the name of each of the subcontractors they will use if awarded the Contract. No substitutions will be allowed without approval of the Owner. The Bidder shall list the names of major subcontractors. If all the information is not provided with the bid, this will be grounds for the Owner to disqualify the Bidder for not being responsive.

ITEM OF WORK

SUBCONTRACTOR NAMES

Electrical _____

Note: If the Contractor will not use a subcontractor for an Item of Work, he shall write "None" in the blank for the Subcontractor for that Item of Work.

If the Bidder does not write in the name of a Subcontractor, he shall submit with his bid detailed evidence satisfactory to the Engineer that he has sufficient personnel experienced in that trade on his full time staff to perform that item of work on this project. Failure to submit such satisfactory evidence with the Bid, or the submission of inaccurate, misleading, or incorrect information, will be grounds for the Owner to disqualify the Bidder for not being responsive.

The Bidder certifies that if his bid is accepted, the above subcontracting firms or businesses will be awarded subcontracts for the above portions of the work.

Contractor _____

By _____

Date _____

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BASIS OF PAYMENT

BASE BID

For unit price items, the quantities shown in the “Items of Work” reflect estimates. The actual quantities will be adjusted during construction to reflect the conditions encountered, or other changes, or Owner preferences. Inasmuch as the actual quantities may vary considerably from the quantities listed in the schedule or shown on the drawings, the bidders shall insert prices that represent his actual costs. The Contractor shall not be paid an amount higher than he bids.

The cost of all work required for the project shall be included in the “Items of Work” listed for the project.

The Contract Unit or Lump Sum Bid Amounts shall be payment in full for furnishing all resources (materials, labor, equipment, etc.) necessary to install and complete each portion of the project in complete accordance with the requirements of the Plans and Specification-Contractual Documents. The Contract Bid Amounts shall include the cost of completing all work described under each bid item description and all necessary incidental work not included or listed as a separate bid item. Incidental work may include, but not be limited to, all necessary excavation (earth or rock), backfilling (earth or stone), demolition, sheeting, shoring, piling, bracing, bypass pumping, dewatering, well pointing, clearing, grubbing, erosion control, locating all utilities and existing piping, repairing or replacing damaged facilities, restoration, grassing, disposal of excess materials, traffic/pedestrian control in accordance with the regulations of all authorities or agencies having jurisdiction over the work areas, permit compliance, and all other miscellaneous tasks necessary to fully complete the projects, etc. The quantities actually required may be significantly more or less than the quantities shown. **The Contractor will be paid for only the quantities actually and properly installed, and approved for payment. The Contractor shall be paid only the price he bids for each item regardless of the conditions encountered, the quantity actually required, or the unit price.**

ITEM 1 – PLANT IMPROVEMENTS

The Contract Lump Sum Price Bid shall include the furnishing of all labor, materials, equipment and incidentals necessary to complete the construction of the Plant Improvements per the Plans and Specifications. The lump sum price bid shall include, but not be limited to: all demolition and removal of existing equipment, proper disposal of equipment and excess materials, complete equipment installation and assemblies, all valves (and valve boxes), piping, fittings, general water plumbing, panels, electrical equipment, electrical, wiring, conduit,

painting, and all other work and incidentals necessary and required to construct a complete and properly functioning improvements in accordance with the Drawings and the Specifications.

ITEM 2 - MOBILIZATION

The Contract Lump Sum Price shall be the cost allowed by the Owner for mobilization of Contractor's forces. The cost includes portions or all the Contractor's cost for bonds, insurance, set up of Contractor's forces and all field offices, acceptance by Engineer and Owner of schedule of payment values, and equipment and personnel movement. The price established by the Owner is an allowance for the Contractor and will be paid upon completion of mobilization. Any costs the Contractor may have above this Item shall be included in other items.

ITEM 3 - OWNER DIRECTED ALLOWANCE FOR EXTRA WORK

The Contract Allowance is an allowance established by the Owner for Extra Work as directed by the Owner during construction. This Extra Work allowance shall not include any work shown or inferred from the Contract Documents (Plans and Specifications), the cost of which shall be included in other pay items. All Owner-directed Extra Work shall be in full conformance with the Contract Documents and the Owner's requirements. The Owner reserves the right to add or not add Owner-directed extra work to the Contract. Payment to the Contractor for all Owner-directed Extra Work shall be established on a case-by-case basis. Before any work under this item is performed, the Owner shall issue a written directive detailing the work to be performed. For any element of Extra Work paid under this item, the Contractor shall submit a cost proposal to the Owner for the Extra Work. When approved by the Owner, the Contractor shall perform the work in accordance with the approved cost proposal. Any unused portion of this allowance item shall revert to the Owner at the completion of the project.

ITEM 4 - START-UP AND USE OF IMPROVEMENTS AND THEIR COMPONENTS

The Contract Lump Sum Price Bid shall be paid for furnishing the Owner operable and completed facilities which have successfully passed tests as specified and been approved by all authorities for use by the Owner as intended and is put in service. This pay item includes, but is not limited to, adjustment, receipt of required documentation and other related services as required to demonstrate that the project is ready for operation by the Owner. The price in this item represents an allowance that is established by the Owner and used by all Contractors bidding the project. The amount of money written in this item will be paid the Contractor when the entire project is in satisfactory service since the components are an integral part of the entire project needed by the Owner. Partial payment may be allowed on this item at the sole discretion of the Owner. Any costs the Contractor may have above this allowance to complete this item shall be included in other bid items. In order to receive payment for this Bid Item, all components must be in proper operation and performing properly.

ALTERNATE ADDER(S) TO BASE BID

ITEM 5 – LAUNDER COVERS

The Contract Lump Sum Price shall be payment in full for the furnishing of all labor, materials, and equipment for the complete installation of Launder Covers on Clarifier #1 as shown and specified in the Contract Documents. This Item shall include, but not be limited to; surface preparation and cleaning, complete equipment assemblies, installation, all hardware, and all appurtenances, incidentals, and miscellaneous equipment shown or as reasonably inferred or required for a complete installation in accordance with the Contract Documents. The Contractor shall follow all manufacturer's installation instructions and recommendations or as directed by the Engineer.

BID

Proposal of _____ (hereinafter called "BIDDER"),
organized and existing under the laws of the State of _____ doing
business as _____.*

To the **City of Alexander City, Alabama** (hereinafter called "OWNER").

In compliance with your Advertisement for Bids, BIDDER hereby proposes to perform all WORK for the construction of **Sugar Creek Wastewater Treatment Plant Clarifier #1 Improvements Bid #22-12** in strict accordance with the CONTRACT DOCUMENTS, within the time set forth therein, at the prices stated below, and in accordance with the "Basis of Payment" herein.

By submission of this BID, each BIDDER certifies, and in the case of a joint BID, each party thereto certifies as to his own organization, that this BID has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this BID with any other BIDDER or with any competitor.

No BIDDER may withdraw a BID within 60 days after the actual date of the opening thereof or after the Notice of Award is transmitted to the BIDDER, provided the Award is made within the 60 days herein described. Should there be reasons why the Contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the OWNER and the BIDDER.

Upon receipt of written notice of the acceptance of this bid, BIDDER will execute the formal contract attached within fifteen (15) days and deliver a Surety Bond or Bonds as required by the General Conditions. The bid security attached is to become the property of the OWNER in the event the contract and bond are not executed within the time set forth, as liquidated damages for the delay and additional expenses to the OWNER caused there.

BIDDER hereby agrees to commence WORK under this Contract on or before a date to be specified in the NOTICE TO PROCEED and to fully complete the PROJECT within the calendar days as specified in Section 1 of the Special Provisions. Bidder further agrees to pay as liquidated damages, the sum as specified in Section 1 of the Special Provisions for each consecutive calendar day thereafter.

* Insert "a corporation", "a partnership", or "an individual" as applicable.

BIDDER acknowledges receipt of the following ADDENDUM:

BIDDER agrees to perform all the work described in the Contract Documents for the following unit prices or lump sum:

Note: The Owner has Sales and Use Tax Exemption status under Alabama law. BIDS shall include only those taxes which are applicable based on this tax exemption status. See Special Provisions for "Application For Tax Certificate of Exemption".

ITEMS OF WORK
BID SCHEDULE

BASE BID

ITEM	QUANT	UNIT	DESCRIPTION	UNIT PRICE	TOTAL
1	1	Lump Sum	Plant Improvements	\$ _____	\$ _____
2	1	Lump Sum	Mobilization	\$ <u>10,000.00</u>	\$ <u>10,000.00</u>
3	1	Lump Sum	Owner Directed Allowance for Extra Work	\$ <u>50,000.00</u>	\$ <u>50,000.00</u>
4	1	Lump Sum	Start-Up and Use of Improvements and their Components	\$ <u>10,000.00</u>	\$ <u>10,000.00</u>

TOTAL OF BASE BID \$ _____

ALTERNATE ADDER(S) TO BASE BID

ITEM	QUAN.	UNIT	DESCRIPTION	UNIT PRICE	TOTAL
5	1	Lump Sum	Launder Covers	\$ _____	\$ _____

ACCOUNTING OF SALES AND USE TAX SAVINGS

Pursuant to Alabama Law, (Alabama Act 2018-234), BIDDER accounts for the Sales and Use Tax savings which are NOT included in the Items of Work - Bid Schedule as follows:

Bidder shall write in the estimated Sales and Use Tax savings which are NOT included in:

1. BASE BID: \$ _____

Failure to provide an accounting of Sales and Use Tax savings in the blank(s) above shall be grounds for the Owner to render the bid non-responsive. Other than determining responsiveness, the estimated Sales and Use Tax savings shall not affect the bid pricing nor be considered in the determination of the lowest responsible and responsive bidder. Accordingly, the Contractor will not be paid for the Sales and Use Tax savings written in the blank(s) above. Bidder shall reference the Special Provisions for “Application for Tax Certificate of Exemption”.

ALABAMA IMMIGRATION LAW COMPLIANCE

State of _____

County of _____

FORM FOR SECTIONS 9 (a) and (b) BEASON-HAMMON ALABAMA TAXPAYER AND CITIZEN PROTECTION ACT; CODE OF ALABAMA, SECTIONS 31-13-9 (a) and (b)

AFFIDAVIT FOR BUSINESS ENTITY/EMPLOYER /CONTRACTOR

(To be completed as a condition for the award of any contract, grant, or incentive by the State of Alabama, any political subdivision thereof, or any state-funded entity to a business entity)

Before me, a notary public, personally appeared _____ (print name) who, being duly sworn, says as follows:

As a condition for the award of any contract, grant, or incentive by the State of Alabama, any political subdivision thereof, or any state-funded entity to a business entity or employer that employs one or more employees, I hereby attest that in my capacity as _____ (state position) for _____ (state business entity/employer/contractor name) that said business entity/employer/contractor shall not knowingly employ, hire for employment, or continue to employ an unauthorized alien.

I further attest that said business entity/employer/contractor is enrolled in the E-Verify program. (ATTACH DOCUMENTATION ESTABLISHING THAT BUSINESS ENTITY/EMPLOYER/CONTRACTOR IS ENROLLED IN THE E-VERIFY PROGRAM) and will utilize the E-Verify program to verify the employment status of employees and potential employers according to Federal Rules and Regulations.

I further attest that all sub-contractors in my employment shall not knowingly employ, have for employment, or continue to employ an unauthorized alien; and are duly enrolled in the E-Verify program and upon request can produce the appropriate forms verifying such action.

Signature of Affiant

Sworn to and subscribed before me this _____ day of _____, 2____.

I certify that the affiant is known (or made known) to me to be the identical party he or she claims to be.

Signature and Seal of Notary Public

**E-VERIFY DOCUMENTATION
AND
STATE CONTRACTORS LICENSE

TO BE INSERTED HERE**

CONTRACT DOCUMENTS

To: _____

The OWNER has considered the BID submitted by you on (Bid Date) for the above described WORK in response to its Advertisement for Bids and Information for Bidders.

You are hereby notified that your BID has been accepted for items in the amount of \$_____.

If you fail to execute said Agreement and to furnish said BONDS within fifteen (15) days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your BID as abandoned and as a forfeiture of your BID BOND. The OWNER will be entitled to such other rights as may be granted by law.

Dated this _____ day of _____, 20____.

By _____
Name **Curtis “Woody” Baird**
Title **Mayor**

Receipt of the above NOTICE OF AWARD is hereby acknowledged

CD-1

NOTICE TO PROCEED

To: _____ Date: _____

Project: _____

Sugar Creek Wastewater Treatment

Plant Clarifier #1 Improvements

Bid #22-12

You are hereby notified to commence WORK in accordance with the Agreement dated _____, 20____ on or before _____, 20____ and you are to complete the WORK within _____ consecutive calendar days thereafter. The date of completion of all WORK is therefore _____, 20____.

The City of Alexander City, Alabama

By _____
Name Curtis "Woody" Baird
Title Mayor

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF PROCEED is hereby acknowledged

By _____
this the _____ day of _____, 20____.
By _____
Title _____

Bond Number

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called Principal, and
(Corporation, Partnership, or Individual)

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto _____

The City of Alexander City, Alabama

(Name of Owner)

P.O. Box 552, Alexander City, Alabama 35011

(Address of Owner)

hereinafter called OWNER, in the penal sum of _____

Dollars,

(\$ _____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain Contract with the OWNER, dated the _____ day of _____, 20_____, a copy of which is hereto attached and made a part hereof for the construction of:

Sugar Creek Wastewater Treatment Plant Clarifier #1 Improvements Bid #22-12

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said Contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety and during the one-year guaranty period, and if he shall satisfy all claims and demands incurred under such Contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS, WHEREOF, this instrument is executed in _____ counterparts, each one
(Number)

of which shall be deemed an original, this the _____ day of _____, 20_____

ATTEST:

(Principal)

(Principal) Secretary By _____(s)

(SEAL)

(Witness as to Principal) _____
(Address)

(Address) _____

Surety

ATTEST:

(Surety) Secretary

(SEAL)

Witness as to Surety By _____
Attorney in Fact

(Address) _____
(Address)

NOTE: Date of BOND must not be prior to date of Contract.
If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the PROJECT is located.

Bond Number

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called Principal, and
(Corporation, Partnership, or Individual)

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto _____

The City of Alexander City, Alabama

(Name of Owner)

P.O. Box 552, Alexander City, Alabama 35011

(Address of Owner)

hereinafter called OWNER, in the penal sum of _____

Dollars,

(\$ _____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain Contract with the OWNER, dated the _____ day of _____, 20_____, a copy of which is hereto attached and made a part hereof for the construction of:

Sugar Creek Wastewater Treatment Plant Clarifier #1 Improvements Bid #22-12

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said Contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety and during the one-year guaranty period, and if he shall satisfy all claims and demands incurred under such Contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract or to WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS, WHEREOF, this instrument is executed in _____ counterparts, each one
(Number)

of which shall be deemed an original, this the _____ day of _____, 20_____.

ATTEST:

(Principal) Secretary

By _____(s)
(Principal)

(SEAL)

(Witness as to Principal)

(Address)

(Address)

Surety

ATTEST:

(Surety) Secretary

(SEAL)

By _____
Witness as to Surety Attorney in Fact

(Address)

(Address)

NOTE: Date of BOND must not be prior to date of Contract.
If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the PROJECT is located.

**CERTIFICATE OF INSURANCE
AND
INSURANCE ENDORSEMENTS**

AGREEMENT

THIS AGREEMENT, made this _____ day of _____, 20____ by and between **The City of Alexander City, Alabama**, hereinafter called "OWNER" and _____ doing business as a "Corporation", "Partnership", "an Individual", or Limited Liability Company (LLC)" hereinafter called "CONTRACTOR".

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

1. The CONTRACTOR will commence and complete the construction of _____
Sugar Creek Wastewater Treatment Plant Clarifier #1 Improvements Bid #22-12
2. The CONTRACTOR will furnish all of the material, supplies, tools, equipment, labor, and other services necessary for the construction and completion of the PROJECT described herein.
3. The CONTRACTOR will commence the work required by the CONTRACT DOCUMENTS within ten (10) calendar days after the date of the NOTICE TO PROCEED and will complete the same within _____ calendar days unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS. The Contractor further agrees to pay, as liquidated damages, the sum of \$_____ for each consecutive calendar day thereafter as hereinafter provided in the GENERAL CONDITIONS and SPECIAL PROVISIONS.
4. The CONTRACTOR agrees to perform all of the WORK described in the CONTRACT DOCUMENTS and comply with the terms therein for the sum of \$_____ or as shown in the BID schedule.
5. The term "CONTRACT DOCUMENTS" means and includes the following:

- (A) Advertisement for Bids
- (B) Information for Bidders
- (C) Bid
- (D) Bid Bond
- (E) Agreement
- (F) General Specifications
- (G) Supplemental General and Special Provisions
- (H) Payment Bond
- (I) Performance Bond
- (J) Notice of Award
- (K) Notice to Proceed
- (L) Change Order
- (M) DRAWINGS prepared or issued by Municipal Consultants, Inc.
numbered _____ through _____, and dated _____, 20____.
- (N) SPECIFICATIONS prepared or issued by Municipal Consultants, Inc.
dated _____, 20____.
- (O) ADDENDA:
No. _____, dated _____, 20____
No. _____, dated _____, 20____
No. _____, dated _____, 20____
No. _____, dated _____, 20____

6. The OWNER will pay to the CONTRACTOR in the manner and at such times as set forth in the General Conditions such amounts as required by the CONTRACT DOCUMENTS.

7. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

8. The Contractor enters into this Contract with the Owner as an independent contractor and, as such, agrees that neither the Owner nor its officers, agents, employees, engineers or inspectors shall be responsible for the acts or omissions of the Contractor, or any subcontractor, or any of the Contractor's or subcontractor's agents or employees, or any other persons performing any of the work pursuant to this Contract. The Contractor shall be solely responsible for controlling construction manner, means and techniques consistent with the Contract Documents, Plans and Specifications.

9. This Agreement, together with all documents which constitute the "Contract Documents" constitute the entire agreement of the parties, as a complete and final integration thereof with respect to its subject matter. All understandings and agreements heretofore had between and among the parties are merged into this Agreement, which alone fully and completely expresses their understandings. No representation, warranty, or covenant made by any party which is not contained in this Agreement or expressly referred to herein has been relied on by any party in entering into this Agreement.

IN WITNESS, WHEREOF, the parties hereto have executed, or caused to be executed by their
duly authorized officials, this Agreement in _____ counterparts, each of which shall be
(Number)
deemed an original on the date first above written.

OWNER:

_____ **The City of Alexander City, Alabama** _____

By _____

Name _____ Curtis "Woody" Baird _____

Title _____ Mayor _____

(SEAL)

ATTEST:

Name _____

Title _____

CONTRACTOR:

By _____

Name _____

Address _____

(SEAL)

ATTEST:

Name _____

Title _____

SPECIAL PROVISIONS

**SPECIAL PROVISIONS
FOR
STARTING AND COMPLETION TIME
AND LIQUIDATING DAMAGES**

SECTION I

1.0 STARTING AND COMPLETION TIME

Work specified under this contract shall begin on the date specified in the Notice to Proceed. The completion of work shall be counted from the specified start date in the Notice to Proceed and will be as follows:

240 calendar days

Requests for extension of time will be submitted to the Engineer along with the Contractor's periodic estimate. The Engineer shall ascertain the facts and the extent of the delay and shall recommend to the Owner whether it should extend the time for completing the Project. The Contractor shall provide all documentation requested by the Engineer. Extensions of time, if any, will be made by the Owner only if in accordance with the Contract Documents.

For change orders requesting extensions of time due to rain, wind, flood or other natural phenomenon, the Contractor's written request must be accompanied, at the Owner's request, by a detailed report of weather at this site for the last ten (10) years with averages showing means and statistical deviations from mean averages to support request for extension. No extension shall be made for delays due to rain, wind, flood or other natural phenomenon of normal intensity for the locality.

In the event any material changes, alterations, or additions are made as herein specified, which in the opinion of the Engineer will require additional time for execution of any work under the contract, then in that case, the time of the completion of the Project may be extended through change order. No extensions of time shall be given for any minor changes, alterations or additions. The Contractor shall not be entitled to any reparation or compensation on account of such additional time or extensions of time.

2.0 LIQUIDATING DAMAGE CHARGE

Beginning with the first periodic estimate after the contract completion date, liquidating damage charges may be assessed by the Owner against the Contractor for each calendar day past the contract completion date, plus approved time extensions. The liquidating damage charges shall be deducted from the Contractor's periodic payment by the Owner. The Contractor shall be notified of the liquidating damage charge and shall have ten (10) days in which to file an appeal of the charges with the Owner. The Owner shall review the appeal and render a decision of approval or disapproval. The liquidated damages shall be as follows beginning from the stated or extended date of completion and continuing for so long as the Project remains incomplete.

\$ 600 per calendar day

Should the Owner not deduct liquidated damages when it is first entitled to, this shall in no way limit the Owner's right to deduct or claim the entire liquidated damages at whatsoever time the Owner may desire. It is understood and agreed that the above deduction is not a penalty, but money due to reimburse the Owner for inconvenience and damage to the general public, due to the delay in the completion of the Project and is reasonable. The collection of liquidated damages by the Owner shall not constitute an election or waiver by the Owner of recovery of additional delay or non-delay related damages from the Contractor, and the Owner expressly reserves the right to recover actual damages for other harms resulting from delay. The provisions of the liquidated damage clause shall apply and continue to apply even if the Contractor terminates or abandons the Project prior to the scheduled completion dates.

The amounts of such liquidated damages and actual damages incurred by reason of failure to complete the work stipulated in the Contract are hereby agreed upon as reasonable estimates of the costs which may be accrued by the Owner. It is expressly understood and agreed that these amounts are not to be considered in the nature of penalties, but as damages which have accrued against the Contractor. The Owner shall have the right to deduct such damages from any amount due, or that may become due the Contractor, or the amount of such damages shall be due and collectible from the Contractor or Surety.

**SPECIAL PROVISIONS
FOR
STANDARD OF QUALITY
FOR BASE BID**

SECTION II

1.0 MANUFACTURED ARTICLES

Where certain items are called for or described, it is to establish a "standard" of quality. The Contractor's Proposal shall be based on furnishing the items as called for or described.

2.0 SUBSTITUTE EQUIPMENT/MATERIALS

Contractors may submit for approval of substitute equipment/material. Such items shall be written in on the "List of Material Suppliers and Equipment Manufacturers". The Contractor shall state the reduction in cost, if any, between the substitute and the equipment in the base bid. No extra will be paid the Contractor for any changes required to adapt the substitute equipment or material and the Contractor shall pay the Owner for any necessary redesign and/or construction drawings. All redesign and drawing will be prepared by the Engineer. Substantial evidence of the equal or superior quality shall be submitted with the bid. The Contractor shall also promptly furnish after bid opening such additional information as may be requested by the Engineer such as lists of installations of the same equipment of similar size and complexity (including contact persons and phone numbers), testing and performance data (including both independent laboratory certification and full scale) to clearly indicate full compliance with all specifications. The determination whether or not the substitute equals the "standard" shall be made by the Engineers and Owner. The Owner may determine any substitute equipment or material as not desired to suit his best interest.

**SPECIAL PROVISIONS
FOR
BASIS OF AWARD**

SECTION III

1.0 REDUCTION OF QUANTITIES

The award will be made to the lowest Bidder for the total bid of all sections as determined in Section 2.0 below. In the event the low bid, taking into consideration the alternate items, is more than the funds allocated for the construction of the Project, the Owner reserves the right, and the Bidder submitting the bid acknowledges and accepts this right, to reduce quantities at the unit price bid, to bring the project within the funds allocated. In the event a reduction in quantities is made, the time allowed for completion of the work shall be reduced proportionately.

2.0 DETERMINATION OF LOW BIDDER

The contract will be awarded to the lowest responsible and responsive Bidder, unless the Owner determines that all the bids are unreasonable or that it is not in the best interest of the Owner to accept any of the bids. The lowest responsible and responsive bid is defined as the total bid of all items on the base bid utilizing the base equipment and materials listed. If more than one equipment or materials supplier is listed in the base equipment/material list, the contractor shall indicate which equipment or material brand he is basing his proposal on.

If Alternate bid items are bid, the Owner shall decide after the Bid Opening what portion of the total project can be completed with the funds available. If no Alternate bids are requested, the Total base Bid will be used to determine the Low Bid. However, if any alternate bid items are to be constructed as determined by the Owner, these Alternate Bid Unit Prices will be added and/or deducted to the Total Base Bid to determine the lowest responsible and responsive Bidder.

**SPECIAL PROVISIONS
FOR
SOURCE OF FUNDING**

SECTION IV

The Owner has funding secured for the anticipated cost of this Project as noted below. Note that more than one funding source may be utilized at the Owner's discretion. The Award of the Project is at the sole discretion of the Owner.

Project Funding Source:

- ☒ Cash reserves on hand
- ☐ Bond Proceeds on hand
- ☐ Bond Proceeds from a Bond Issue to be completed after Bids are opened
- ☐ Grant or Award
- ☐ Direct Reimbursement from a State, Federal or Local Government Agency
- ☐ Other source which will not become available until after the execution of the Contract

Payment to Contractors shall be in accordance with the Contract Documents and the Code of Alabama 39-2-12

**SPECIAL PROVISIONS
FOR
APPLICATION FOR TAX CERTIFICATE OF EXEMPTION**

SECTION V

Under Alabama law (Alabama Act 2018-234), the Owner is tax exempt from the payment of all State, County, and Municipal Sales and Use Taxes for *purchases that qualify for an exemption* pursuant to Alabama Department of Revenue (ADOR) Rule No. 810-6-3-.77. Bidders shall not include Sales and Use Taxes in their bid for *purchases that qualify for exemption* under ADOR rules. However, Bidders shall account for the Sales and Use Tax savings (i.e., the Sales and Use Taxes not included in the Contractor's bid) in the designated section of the bid form (included in the Bid Documents) in accordance with Alabama law. All Bidders shall reference Alabama Act 2018-234 and the ADOR - Sales and Use Tax Rules (specifically Rule No. 810-6-3-.77) prior to bidding. Bidders shall include all Sales and Use Taxes for purchases of non-exempt materials and items, etc., as well as all other applicable taxes. It shall be the responsibility solely of the Bidder to determine which purchases for this project are exempt from Sales and Use Tax and which purchases are not exempt.

Following execution of the Contract and in accordance with ADOR Rule No. 810-6-3-.77, the Contractor and any Sub-Contractors shall submit an Application for Sales and Use Tax Certificate of Exemption (ADOR Form ST: EXC-01) to the ADOR that is specifically for this tax-exempt project. The Contractor and any Sub-Contractors shall comply with all requirements of the ADOR and shall obtain the Certificates of Exemption (ADOR Form STC-1) prior to ordering any materials for the project that qualify for exemption of Sales and Use Taxes. The Owner will make available any information that is requested by the Contractor and is required by the ADOR for the Contractor and any Sub-Contractors to obtain their Certificates of Exemption. In accordance with ADOR Rule No. 810-6-3-.77, the Owner will also fulfill its obligation to submit its Application for Sales and Use Tax Certificate of Exemption specifically for this tax-exempt project.

**SPECIAL PROVISIONS
FOR
INSURANCE REQUIREMENTS**

SECTION VI

1. All bidders shall have their insurance provider thoroughly review all insurance requirements prior to Bid opening to ensure the Contractor includes sufficient monies to meet all insurance requirements. This review by the insurance provider shall be detailed and complete. The review shall determine pricing and availability of all specific insurance requirements including specific endorsements. This review shall determine all additional and special insurance that the Contractor must acquire to be in full and complete compliance with all insurance requirements. Prior to bidding, all bidders shall furnish to their insurance providers complete copies of all insurance requirements contained in the General Specifications Section of this Contract, all insurance requirements in other sections of the documents (including but not limited to the Special Provisions), and those required by permits, etc.
2. As soon as indication is given that the low bidder will apparently be awarded the contract, the Contractor shall have his insurance provider begin making whatever arrangements may be necessary to allow all required insurance, including all specific requirements (e.g., specific endorsements, etc.) for this particular project, to be promptly obtained so as not to delay execution of the contract.
3. Per the General Specifications, the Contractor will be required to provide copies of the Contractor's automatic policy endorsements or original policy endorsements acceptable to the Owner. Each endorsement shall indicate the policy number and be complete in full accordance with the General Specifications and to the satisfaction of the Owner and Engineer. The policy endorsements shall be filed with the Owner prior to the Owner's execution of the Contract. Automatic and/or original policy endorsements for additional insureds and waivers of subrogation for ALL policies shall be as broad as (i.e., similarly worded to) the following General Liability endorsements:
 - a. Endorsements for the Additional Insured - ISO's CG 20 10 11/85 or the combination of CG 20 10 10/01 and CG 20 37 10/01
 - b. Endorsements for Waivers of Subrogation - ISO's CG 24 04 10 93 or CG 24 04 05 09.

Samples of acceptable ISO forms are provided on the following pages. Although these sample endorsements are for General Liability, ALL endorsements for ALL policies shall be similarly worded and acceptable to the Owner.

4. Per the General Specifications, "All Risk" Insurance (including flood insurance) shall be provided, if applicable. "All-Risk" Insurance shall be provided for all plants, pumping stations, buildings, tanks, structures, and equipment, etc. "All Risk" Insurance shall be provided as applicable for other portions of the project.
5. If project includes SRF Funding, Flood Insurance shall meet all SRF requirements.

POLICY NUMBER:

COMMERCIAL GENERAL LIABILITY

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – (FORM B)

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART.

SCHEDULE

Name of Person or Organization:

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

WHO IS AN INSURED (Section II) is amended to include as an insured the person or organization shown in the Schedule, but only with respect to liability arising out of "your work" for that insured by or for you.

POLICY NUMBER:

COMMERCIAL GENERAL LIABILITY
CG 20 10 10 01

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

**ADDITIONAL INSURED – OWNERS, LESSEES OR
CONTRACTORS – SCHEDULED PERSON OR
ORGANIZATION**

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name of Person or Organization:

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

A. Section II – Who Is An Insured is amended to include as an insured the person or organization shown in the Schedule, but only with respect to liability arising out of your ongoing operations performed for that insured.

B. With respect to the insurance afforded to these additional insureds, the following exclusion is added:

2. Exclusions

This insurance does not apply to "bodily injury" or "property damage" occurring after:

- (1) All work, including materials, parts or equipment furnished in connection with such work, on the project (other than service, maintenance or repairs) to be performed by or on behalf of the additional insured(s) at the site of the covered operations has been completed; or
- (2) That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as a part of the same project.

POLICY NUMBER:

COMMERCIAL GENERAL LIABILITY
CG 20 37 10 01

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – COMPLETED OPERATIONS

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name of Person or Organization:
Location And Description of Completed Operations:
Additional Premium:

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

Section II – Who Is An Insured is amended to include as an insured the person or organization shown in the Schedule, but only with respect to liability arising out of "your work" at the location designated and described in the schedule of this endorsement performed for that insured and included in the "products-completed operations hazard".

POLICY NUMBER:

COMMERCIAL GENERAL LIABILITY
CG 24 04 10 93

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

WAIVER OF TRANSFER OF RIGHTS OF RECOVERY AGAINST OTHERS TO US

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name of Person or Organization:

(If no entry appears above, information required to complete this endorsement will be shown in the Declarations as applicable to this endorsement.)

The TRANSFER OF RIGHTS OF RECOVERY AGAINST OTHERS TO US Condition (Section **IV** – COMMERCIAL GENERAL LIABILITY CONDITIONS) is amended by the addition of the following:

We waive any right of recovery we may have against the person or organization shown in the Schedule above because of payments we make for injury or damage arising out of your ongoing operations or "your work" done under a contract with that person or organization and included in the "products-completed operations hazard". This waiver applies only to the person or organization shown in the Schedule above.

POLICY NUMBER:

COMMERCIAL GENERAL LIABILITY
CG 24 04 05 09

WAIVER OF TRANSFER OF RIGHTS OF RECOVERY AGAINST OTHERS TO US

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

SCHEDULE

Name Of Person Or Organization:

Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

The following is added to Paragraph **8. Transfer Of Rights Of Recovery Against Others To Us** of Section IV – Conditions:

We waive any right of recovery we may have against the person or organization shown in the Schedule above because of payments we make for injury or damage arising out of your ongoing operations or "your work" done under a contract with that person or organization and included in the "products-completed operations hazard". This waiver applies only to the person or organization shown in the Schedule above.

**SPECIAL PROVISIONS
FOR
CONSENT OF SURETY
RELEASE OF LIENS
PAYMENT OF DEBTS AND CLAIMS**

SECTION VII

When the Owner and the Engineer have completed a review of the Work and of the request for final payment and accepted all work, final payment of the amount determined to be due under the Contract will be made to the Contractor, provided that all provisions of the Contract have been met, including all aspects of Section IX.3 FINAL PAYMENT contained in the General Specifications. In particular, the Contractor shall provide:

- Certified evidence that all payrolls, all amounts due for labor and materials, and all other indebtedness connected with the work have been fully paid and satisfied, and that there are no outstanding claims or demands against the Contractor in any manner connected with the work.
- A release of all claims and claims of lien against the Owner and its agents and Engineer from the Contractor and all major subcontractors (the Owner may waive the requirement for subcontractor releases) arising under and by virtue of the Contract, on form provided by the Owner, duly executed by the Contractor and with the consent of the Surety. The Contractor may specifically exclude claims of the Contractor from the operation of the release if specifically excluded there from in stated amounts and the reason therefore. The Contractor may with the consent of the Owner representative, if any subcontractor refuses to furnish such a release, furnish a bond with surety satisfactory to the Owner representative to indemnify against such claims.

Forms are provided on the following pages.

**CONTRACTOR'S AFFIDAVIT OF RELEASE OF LIENS AND PAYMENT OF DEBTS
AND CLAIMS**

PROJECT:

(project name)

CONTRACT DATE:

TO OWNER:

(name and address of Owner)

STATE OF:

COUNTY OF:

I CERTIFY to the best of my knowledge and belief that all work has been performed and materials supplied in strict accordance with the terms and conditions of the corresponding contract documents between the _____, hereinafter called the OWNER, and, _____, hereinafter called the CONTRACTOR, for the above referenced project.

I further certify and declare that all bills for materials, supplies, utilities and for all other things furnished or caused to be furnished by the CONTRACTOR and used in the execution of the contract are fully paid and that there are no unpaid obligations, liens, claims, security interests, encumbrances, liabilities and/or demands of agencies, subcontractors, materialmen, mechanics, laborers or any others resulting from or arising out of any work done, caused to be done or ordered to be done by the CONTRACTOR under the contract, except as listed below.

I further certify and declare that, except as listed below, the CONTRACTOR (including but not limited to the Contractor, Subcontractors, all suppliers of material and equipment, and all performers of work, labor, or services) releases and forever discharges as well as indemnifies and holds harmless the OWNER and ENGINEER (Municipal Consultants, Inc.) from any and all obligations, liens, claims, security interests, encumbrances and/or liabilities arising by virtue of the contract and authorized changes between the contracting parties, and any and all claims and demands of every kind and character whatsoever against the OWNER and ENGINEER (Municipal Consultants, Inc.), arising out of or in any way relating to the contract and authorized changes.

EXCEPTIONS:

CONTRACTOR:

(name and address of Contractor)

BY: _____

(signature of authorized representative)

(printed name and title)

Subscribed and sworn to before me on this _____ day of _____, 20____.

Notary Public

My commission expires: _____

CONSENT OF SURETY TO FINAL PAYMENT

PROJECT:

(project name)

CONTRACT DATE:

TO OWNER:

(name and address of Owner)

In accordance with the provisions of the Contract between the OWNER and the CONTRACTOR as indicated above, the

(name and address of Surety Company)

, SURETY COMPANY,

on bond of

(name and address of Contractor)

, CONTRACTOR,

hereby approves of the final payment to the CONTRACTOR, and agrees that the final payment to the CONTRACTOR shall not relieve the SURETY COMPANY of any of its obligations to

(name and address of Owner)

, OWNER,

IN WITNESS WHEREOF, the SURETY COMPANY has hereunto set its hand on this _____ day of _____, 20____.

Surety Company

Signature of authorized representative

Printed name and title

**SPECIAL PROVISIONS
FOR
CERTIFICATION REQUIREMENTS**

SECTION VIII

1.0 CERTIFICATION REQUIREMENTS

The Contract requires that the Contractor provide written certification for various items. These certifications shall be furnished on forms provided by the Engineer. Copies of some of the required certification forms are included in this Special Provision. For the other certifications, the Contractor shall request the certification forms individually prior to the need for the form.

The Contractor shall provide the certifications in a timely manner concurrently with the occurrence being certified. Additionally, at the completion of the project, the Contractor shall submit copies of all certifications (except submittal certification forms) collectively in a single three-ring binder with a Table of Contents listing each certification contained in the binder. The certifications in the binder shall be submitted prior to the payment of the Startup payment item. All required warranty forms shall also be included in this three-ring binder and its Table of Contents.

The Contractor shall review and understand the certification requirements and all other requirements contained (1) in the Shop Drawings, Submittals, and O & M Manuals section of the General Specifications and (2) in the “All Equipment” specification. Both of these specifications contain many requirements (including the certification requirements) that apply throughout the project. Additional certification requirements are contained in various other specifications.

SUBMITTAL CERTIFICATION FORM

PROJECT: _____ OWNER: _____

GENERAL CONTRACTOR: _____

EQUIPMENT MANUFACTURER: _____

SUBMITTAL DESCRIPTION: _____

CONTRACTOR'S SUBMITTAL IDENTIFICATION NUMBER: _____

EQUIPMENT MANUFACTURER:

I do hereby certify that I have responsible control over this submittal. This submittal has been thoroughly reviewed and all project requirements, along with submittal requirements are completely understood. The submittal is in full accordance with all submittal requirements contained in the General Specifications, except as clearly itemized in the enclosed submittal documentation. I certify that the submittal clearly shows all connecting wiring (including power controls, instrumentation, and SCADA) including but not limited to voltages, power sources, and (where applicable) signal types. By signing below, I certify to the above and acknowledge that the Engineer is not required to review any submittal that is not in full accordance with all submittal requirements.

By: _____ Equipment Manuf.: _____
(Printed Name)

Signature: _____ Date: _____

Title: _____

GENERAL CONTRACTOR:

I do hereby certify that I have carefully reviewed this submittal. This submittal has been reviewed and coordinated by the Electrical Subcontractor and SCADA/system integrator. This submittal has been thoroughly coordinated as required. I certify that the submittal clearly shows all connecting wiring (including power controls, instrumentation, and SCADA) including but not limited to voltages, power sources, and (where applicable) signal types. I further certify that the paint system proposed in the submittal meets all the project painting specifications including, but not limited to, preparation, coating system, number of coats, thickness and color. This submittal contains long term and short term storage instructions specific for the project including, but not limited to, whether or not equipment must be stored in conditioned space, heated space, or only out of the weather, etc. This submittal contains a listing of all spare parts and these spare parts are in conformance with the Specifications. The submittal states the manufacturer's field services being provided. All exceptions are listed on an attached sheet. I acknowledge that the Engineer is not responsible for determining any exceptions to the project requirements or for reviewing any exceptions unless they are clearly pointed out on a page in the submittal entitled "**EXCEPTIONS**" that is signed and dated by the Contractor. By signing below, I certify to the above and acknowledge that the Engineer is not required to review any submittal that is not in full accordance with all submittal requirements.

By: _____ General Contractor: _____
(Printed Name)

Signature: _____ Date: _____

Title: _____

ELECTRICAL SUBCONTRACTOR: (Only applicable if equipment relates to electrical, controls, instrumentation, or SCADA)

I do hereby certify that I have carefully reviewed this submittal. This submittal has been reviewed and coordinated by the Electrical Subcontractor and SCADA/system integrator. This submittal has been thoroughly coordinated as required. I certify that the submittal clearly shows all connecting wiring (including power controls, instrumentation, and SCADA) including but not limited to voltages, power sources, and (where applicable) signal types.

By: _____ Electrical Subcontractor: _____
(Printed Name)

Signature: _____ Date: _____

Title: _____

SUBMITTAL EXCEPTIONS

Project: _____

Submittal: _____

This sheet shall be included with all submittals. List all exceptions below. If there are no exceptions, write "None" and include this executed sheet.

I certify that all exceptions have been listed above.

By: _____ (Printed Name)

_____ (Signed Name)

Date: _____

Certification of Proper Installation for

(Print Name of Equipment)

I hereby certify that I have thoroughly inspected and reviewed the referenced equipment and its installation. It has been checked, adjusted and lubricated as applicable. The electrical and safety features meet the requirements of the manufacturer. This equipment meets all the requirements of the Manufacturer and is ready for normal operation.

Project Name

Date

Name – print

Signature

Company Name - print

Position – print

Phone # of Representative
Signing Certificate

This certification does not relieve the Contractor from any of the requirements of the plans and specifications nor does it indicate acceptance of the equipment by the Owner.

**SPECIAL PROVISIONS
FOR
CONTRACTOR'S PERSONNEL**

SECTION IX

Contractor shall submit, when required by the Owner, the resumes of the project manager and project superintendent who will be assigned to this job. Resumes should include recent references from jobs where the manager and superintendent performed in a similar capacity up to two resumes may be submitted for each position. The Owner reserves the right to condition the Award and Execution of the project on selected personnel being assigned to this project for the duration of the project.

Contractor shall also submit when required by the Owner, the resumes and qualifications of the electrical subcontractor. Electrical subcontractor personnel shall be experienced in the construction of water/wastewater facilities. Submission should include job references and resumes of project manager and superintendent who will be assigned to this project.

The Owner reserves the right to reject a subcontractor at the Owner's sole discretion and to condition the Award and Execution of the project on selected personnel being assigned to the project for the duration of the project.

GENERAL SPECIFICATIONS

GENERAL SPECIFICATIONS

SECTION I DEFINITION OF TERMS

In these Specifications, or in any Documents or Instruments in construction operations where these Specifications govern, the following terms, or pronouns in place of them, shall be interpreted as follows:

I.1 ADDENDA

Written or graphic instruments, issued prior to the execution of the agreement which modify or interpret the Contract, Plans, and Specifications by additions, deletions clarifications, or corrections.

I.2 A.S.T.M.

The American Society for Testing Materials.

I.3 BIDDER

A person, firm or corporation submitting a written Proposal in answer to an advertisement or request for Bids for the construction of the improvement.

I.4 CHANGE ORDER

A written instrument prepared by the Engineer and signed by the Owner, Contractor and Engineer stating their agreement upon a change in the Work, the amount of the adjustment in the Contract Sum, if any, and the extent of the adjustment in the Contract Time, if any.

I.5 CONTRACT

The written Agreement between the Owner and the Contractor, covering the performance of the work and the furnishing of the labor, equipment and materials. The Contract shall include, but shall not be limited to, the "Notice to Contractors," "Proposal," "Plans," "General Specifications," "Standard Specifications," "Supplemental Specifications," "Special Provisions," "Contract Agreement," and "Contract Bonds," together with all the Agreements and "Change Orders" that are required to complete the work in accordance with the Plans and the Contract.

I.6 CONTRACT BID PRICE

The total of the products of the estimated quantities of the items of the work listed in the Proposal and the unit prices bid.

I.7 CONTRACT BONDS

The approved indemnity bonds furnished by the Contractor and his Surety to guarantee completion of the Contract.

I.8 CONTRACT COMPLETION TIME

The period in calendar days from the time specified for the commencement of work to the time specified for its total completion.

I.9 CONTRACTOR

The individual, firm or corporation, the Party of the Second part to the Contract, who has entered into a Contract awarded him by the Owner, acting directly or through his agents or employees.

I.10 ENGINEER

The Engineer employed by the Owner, or his representative.

I.11 EQUIPMENT

Machinery, tools, and supplies for the construction of the work.

I.12 EXTRA WORK

Work authorized in writing by Change Order and performed by the Contractor, for which there is no basis of payment in the Contract Documents and Plans.

I.13 EXTRA WORK ORDERS

Written orders by Change Order to the Contractor authorizing work or furnishing of materials for EXTRA WORK, as defined in these Specifications.

I.14 INSPECTOR

A person employed by the Owner or Engineer to make inspection of materials and work.

I.15 ITEM

A specified class of work for which bid prices are in the Bid Documents.

I.16 MATERIAL

Any substance to be used in connection with the improvements.

I.17 NOTICE TO PROCEED (WORK ORDER)

Written notice from the Owner to the Contractor allowing work to start.

I.18 OWNER

The Party of the First Part to the Contract.

I.19 PLANS

All approved drawings which are on file at the office of the Owner or Engineer, or their reproductions showing the details of the work covered by the Contract.

I.20 PROPOSAL

The formal signed Bid Form with prices provided by the Bidder.

I.21 PROPOSAL FORM

All prepared forms on which Bids are submitted in the Bid Documents and all items in the Specification - Contractual Documents.

I.22 PROPOSAL GUARANTY

The Bid Bond or cashier's check to be furnished by the Bidder as a guarantee that he will enter into a Contract for the work as bid.

I.23 RESPONSIBLE BIDDER

Responsible Bidder shall mean a Bidder who, among other qualities determined necessary for performance, is competent, experienced, and financially able to perform the Contract.

I.24 RESPONSIVE BIDDER

Responsive Bidder shall mean a Bidder who submits a bid that complies with the terms and conditions of the invitation for bids, including plans, drawings, specifications and other provisions of the Contract Documents.

I.25 RETAINAGE

Retainage shall mean that money which has been held or retained by the awarding authority from Contractor's pay requests conditioned upon final completion and acceptance of all work in connection with the Project. Payment of retainage to the Contractor may be reduced by other contract considerations.

I.26 RIGHT-OF-WAY

The area acquired for use in constructing, operation and maintaining the work.

I.27 SPECIAL PROVISION

Clauses or memoranda, applying to the Contract of which these Specifications are a part, and/or amending these Specifications.

I.28 SPECIFICATIONS

The requirements, including Supplemental and Special Provisions applying to the Contract, establishing the type and kind of materials, applicable standards of quality and care, and equipment to be furnished and incorporated in the work.

I.29 STREET

Any or all portions of any dedicated street, avenue, alley, road, or other public highway.

I.30 SUBCONTRACTOR

Any individual, firm or corporation undertaking work under the Contract with an Agreement between himself and the Contractor, and approved by the Surety with the Owner reserving the right to disapprove the subcontractor. The Contractor shall be fully responsible for all his subcontractors including but not limited to safety.

I.31 SUPERINTENDENT

The representative of the Contractor who is present at the work at all times and authorized to interact with the Engineer and who is capable of efficiently superintending the work. The superintendent shall act as a manager which excludes him from operating equipment or performing any construction labor.

I.32 SUPPLEMENTAL AGREEMENT

A Written Agreement between the Contractor and the Owner with the consent of the Surety, modifying the original Contract.

I.33 SUPPLEMENTAL SPECIFICATIONS

Specifications supplemental to or superseding specified portions of the Specifications.

I.34 SURETY

The corporate body, licensed under the laws of the state in which the work is to be performed and bound with the Contractor for the performance of the Contract and payment of all claims recoverable under the Contract Bonds.

I.35 WORK

All performance required of the Contractor under the terms of the Contract to complete and provide the Owner the final project as described in the plans and contract.

**SECTION II
PROPOSAL REQUIREMENTS AND CONDITIONS**

II.1 QUALIFIED BIDDERS

Proposal Forms will be considered only from Contractors licensed under the laws of the state in which the work is to be done. A copy of the Contractor's license in the state work is to be performed must be attached to the bid. Only Contractors having met all qualification requirements as set forth in these Specifications shall be considered qualified. If the Owner requires prequalification of bidders, the bidder must successfully complete the Owner's requirements in the time frame required in the prequalification solicitation and these Specifications.

II.2 PROPOSAL FORM

The Engineer will furnish Bidders a Proposal Form showing the items of the work and/or materials to be furnished, the amount of the Proposal Guaranty, and the date, time

and place of the opening of proposals and the time in which the work must be completed. The Proposal Form will contain all papers bound with or attached to the Specification-Contractual Documents and addenda and are part of the Contract and/or Proposal and must not be detached or altered.

II.3 INTERPRETATION OF ESTIMATES

The estimates of work listed in the Proposal Form (including Basis of Payment and Items of Work) are to be considered only approximate quantities of items and are to be used as a basis for comparing bids. The Owner does not by any means guarantee that the approximate quantities given will hold in the construction of the work. Final installed quantities may vary significantly from the estimates shown.

Final Payment will be made for actual quantities of the work performed as approved by the Engineer, at the contract prices bid. Should the quantities of the pay items be more or less than the quantities estimated, the contract unit prices bid in the Proposal will prevail.

II.4 EXAMINATION OF PLANS, SPECIFICATIONS AND SITE OF WORK

Bidders are required to thoroughly examine the site of the proposed work, the Proposal Form, Plans, Specifications and the Contract. The submission of the Proposal shall be evidence that the Bidder has made such thorough examination and that the Contractor's bid includes all necessary components to provide the Owner with a fully functional facility that is complete in all respects. No compensation will be allowed for losses caused by failure to comply with this requirement.

II.5 PREPARATION OF PROPOSAL

Bidder's Proposal must be submitted on the Forms furnished him by the Engineer. The Bidder must specify in ink; in figures; if a space is provided, in words; a unit price; and a total price for each of the separate items. In case of error or discrepancy the sum obtained by adding all of the products of the unit prices and the estimated quantities shall prevail, and this shall be the Contract Bid Price. The prices in words will govern if a space is provided in the Bid Form. If a space for words is not provided on the Bid Form, the written unit price in figures will prevail for each work item. The total of that Bid Item that is accepted is the product of the Bidder's written unit price and the estimated quantity of that Bid Item.

The Proposal shall be signed by the Bidder. Name and address must be shown; if a firm or partnership, the name and address of each member of the firm, or partnership must be shown; if a corporation, the president, vice-president or secretary shall sign and affix the corporate seal. If the person signing the Proposal is an agent, the agent must attach written authorization from the corporation. The Proposal must show the name of the corporation, the state under which the corporation is chartered and the name, title and address of the officer executing the proposal.

Proposal Forms shall be enclosed in an envelope, sealed and addressed to the Owner with the Bidder's name and address inscribed on the outside and a warning not to be opened until the bid date. Proposals may be submitted to the Owner in person, by mail, or by agent, at any time prior to the day and time set for the opening of bids. Proposals will be

opened at the designated office at the time set forth in "Advertisement for Bids." Only bids submitted by Contractors licensed by the state laws in which the work is to be done will be considered. Proposals shall be submitted in the specification and contractual documents form in the proper order. No Proposal will be received after the time specified in the "Advertisement for Bids". A Bidder may withdraw, personally or by telegraphic or written request, any time prior to the closing time for receipt of bids. No Bidder may withdraw for a minimum period of sixty (60) days after the date set for the opening, but the period may be modified in the Bid Documents.

If any person submitting a bid is in doubt as to the meaning of any part of the Plans, Specifications, or other Contract Documents, he may submit to the Engineer a written request for an interpretation. Any interpretation of the Documents will be made only by an addendum and a copy of such addendum will be mailed or delivered to each person receiving a set of Documents. The Owner or Engineer will not be responsible for other explanations or interpretations.

Prior to bid opening, the Owner will make available to prospective Bidders, upon request, any information that it may have as to subsurface conditions and surface topography at the work site. Investigations conducted by the Owner or its Engineers of subsurface conditions were made for the purpose of study and design, and neither the Owner nor the Engineer assumes any responsibility whatever in respect to the sufficiency or accuracy of borings, or of the logs of test borings, or of other investigations that have been made, or of the interpretations made thereof, and there is no warranty or guarantee, either expressed or implied, that the conditions indicated by such investigations are representative of those existing throughout such area, or any part thereof, or that unforeseen developments may not occur.

Logs of test borings, geotechnical reports, or topographic maps showing a record of the data obtained by the investigations of surface and subsurface conditions shall not be considered a part of the Contract Documents, and are available only for the convenience of the Bidders. Such logs and reports represent only the opinion of the Geotechnical Engineer as to the character of the materials encountered by him in his investigations of the test borings.

Information derived from inspection of logs of test borings, or pits, geotechnical reports, topographic maps, or from Drawings showing location of utilities and structures will not in any way relieve the Contractor from any risk, or prevent him from properly examining the site and making such additional investigations as he may elect, or from properly fulfilling all the terms of the Contract Documents.

The Owner and Engineer shall not be responsible for any interpretations or conclusions drawn from any subsurface exploration reports or borings. Each Bidder is to base his bid upon his determination of the subsurface conditions and of the types and quantities or material to be encountered or needed. Additional tests or other exploratory operations may be made at no cost to the Owner.

II.6 IRREGULAR PROPOSALS

Proposals may be rejected as being non responsive if they contain omissions or uncompleted forms, alterations of form, additions, conditional bids, improper alternate bids, incomplete bids, erasures, or irregularities. Combination bids submitted as specified will not be classed as irregular. Proposals in which the unit or lump sum prices bid are obviously

unbalanced may be rejected. Bidders shall supply the names and addresses of major material suppliers and subcontractors as requested in the bid proposal and if not provided will be grounds for the Owner to disqualify the Bidder for not being responsive.

II.7 PROPOSAL GUARANTY

No Proposal will be considered unless accompanied by a cashier's check drawn on a bank in the Owner's state or Bid Bond from a company duly authorized and qualified to make bond in the Owner's state. The bond amount should be five percent (5%) of the Contract Bid but in no case more than \$10,000.

II.8 OPENING OF PROPOSALS

Proposals will be opened and read publicly at the time and place indicated in the "Advertisement for Bids." Bidders or their authorized agents are invited to be present.

II.9 DISQUALIFICATION OF BIDDERS

A Bidder using the same or different names for submitting more than one Proposal will be disqualified. A Bidder may submit a Proposal as a Subcontractor to other principals and not be disqualified provided he does not withdraw his bid after bid opening.

If there is a reason for believing that collusion exists among the Bidders, any or all Proposals may be rejected. Those participating in collusion may be barred from submitting bids on the same or other work with the Owner.

The Owner can disqualify and/or reject bids where the Bidder does not comply with the requirements of the Contract Documents. The Owner reserves the right to reject any bid that is submitted by a Bidder that is determined by the Owner to not be a responsible Bidder or whose bid proposal is not responsive. In determining whether a Bidder or bid is responsible, the Owner reserves the right to also request and consider the factors in Section III.2 of the General Specifications.

II.10 COMPLIANCE WITH LAWS AND ORDINANCES

Each Bidder shall inform himself of, and the Bidder awarded a contract shall comply with, federal, state, and local laws, statutes, and ordinances relative to the execution of the work. This requirement includes, but is not limited to, applicable regulations concerning minimum wage rates, the use of domestic products, U.S. steel and resident labor, non-discrimination in the employment of labor, protection of public and employee safety and health, environmental protection, the protection of natural resources, fire protection, burning and non-burning requirements, permits, fees and similar subjects. The attention of all Bidders is called to the fact that the work will be subject to compliance with all applicable building and technical codes and will be subject, in addition to all other inspections, to inspection by a representative of the City's and/or County's building inspection department which has jurisdiction over the project, if any. If the project is a Public Works projects as defined by Alabama Code, Title 39 (1997), the bidders will be governed by the above Code. No adjustments or compensation will be allowed for losses caused by failure to comply with such requirements.

II.11 GENERAL CONTRACTOR'S PERMITS OR LICENSES

The attention of all Bidders is called to the provisions of the State law governing general contractors as set forth in ALA.CODE §34-8-1 et seq. (1975), particularly in regard to the need for and evidence of a State general contractor's license. The provisions of said state are adopted herein by reference and form a part of the Contract with the selected Bidder should this project be awarded.

Bidders will be governed by said statutes insofar as they are applicable. To summarize the above quoted statutes, ALA.CODE §34-8-1, et seq. (1975) provides that no one is entitled to bid and no contract may be awarded to anyone who does not possess a valid general contractor's permit or license, including specialty classifications for the work, as provided by the foregoing sections of the State Code, and rules and regulations promulgated pursuant thereto and that said bid may not be considered without evidence being produced that he is so qualified. Trade contractors must be duly licensed in accordance with applicable law. The Owner may not enter into a contract with a nonresident corporation that is not qualified under the State law to do business in Alabama.

SECTION III AWARD AND EXECUTION OF CONTRACT

III.1 CONSIDERATION OF PROPOSALS

After the Proposals are opened, read and checked, the results will be made public. Until the final award of the Contract, the Owner reserves the right to reject any and all Proposals, and to waive technical errors. A Proposal will not be considered unless signed by the Bidder or his authorized agent and accompanied by cashier's check drawn on a state bank in the Owner's state or Bid Bond.

III.2 AWARD OF CONTRACT

The successful Bidder will be notified by "Notice of Award" mailed to the address shown on his Proposal.

In order to be considered for the award, the Bidder shall present to the Owner, when requested, satisfactory evidence that:

(a) He has the necessary capital and financial resources to undertake and complete the project.

(b) He has equipment, in good working order, adequate for performance of work within the time specified.

(c) He has within his organization, at the time, the construction management and supervisory personnel available for assignment to the project.

(d) The construction management and supervisory personnel are skilled and experienced in the particular type of work to be undertaken on the project. The bidder's attention is called to "V.2 CONTRACTOR".

(e) He has performed and completed similar work of similar magnitude in a satisfactory manner.

(f) There are no outstanding claims with the Owner on previous projects.

(g) He has complied with all qualification requirements set forth in these Specifications.

The Owner reserves the right to reject any proposal if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Contract and complete the work contemplated therein.

The Contractor shall use the personnel he submits as evidence of qualification throughout the construction of the project.

III.3 CANCELLATION OF AWARD

The Owner reserves the right to cancel the award of the Contract before its execution by either the Contractor or Owner without any liability against the Owner or the Engineer.

III.4 REQUIREMENTS OF CONTRACT BONDS

In order to insure the performance of the Contract and indemnify and save harmless the Owner and the Engineer from all damages, the Bidder, to whom the Contract is awarded, shall within fifteen (15) days from the award furnish the Owner, Surety Bonds equal to one hundred (100%) per cent of the total contract amount for Performance of Work and Payment of Labor and Materials.

Bonds shall be made on approved Bond Form, furnished by a Surety company authorized to do business in the state. The Bonds shall be countersigned by an authorized agent who is a resident of the state. The Bond shall have attached power of attorney of the signing official. Bonds shall be valid for twelve (12) months from date of final acceptance of the work.

III.5 EXECUTION OF CONTRACT BY CONTRACTOR

The Contract shall be signed by the Bidder receiving the award and returned to the Owner with Contract Bonds within fifteen (15) days of Notice of Award.

III.6 APPROVAL OF CONTRACT AND EXECUTION BY OWNER

The Owner shall approve and execute the Contract within fifteen (15) days after it has been completed in its entirety with all requirements properly met and its presentation to the Owner unless the Contractor agrees in writing to a longer period. No contract is binding upon the Owner until it has been executed by the Owner. The date of the execution of the Contract shall be when signed by the Owner. The "Notice to Proceed" may be held by the Owner for a reasonable time to remedy details of the project.

III.7 FAILURE TO EXECUTE CONTRACT

Should the successful Bidder or Bidders to whom a Contract is awarded fail to execute a Contract(s) and furnish acceptable Contract securities and evidence of insurance, as required, within fifteen (15) days after the prescribed forms have been presented to him/her, the Owner shall retain the proposal guaranty, or recover from the principal or the sureties, if the guaranty is a bid bond, the difference between the amount of the Contract as awarded, and

the amount of the proposal of the new lowest Bidder. If no other bids are received, the full amount of the proposal guaranty shall be so retained and recovered as liquidated damages for such default. Any sum so retained or recovered shall be the property of the Owner. In the event of the death of the lowest Bidder (if an individual) between the opening of the bids and ten (10) days following award of the Contract the Owner shall return the Proposal Guaranty to the estate of the Bidder.

III.8 WAIVER OF TRIAL BY JURY

The parties to the Contract desire to avoid the additional time and expense related to a jury trial of any disputes arising hereunder. Therefore, it is mutually agreed by and between the parties hereto, and for their successors and assigns, that they shall and hereby waive trial by jury of any claim, counterclaim, or third-party claim, etc., including any and all claims of injury or damages, etc., brought by either party against the other arising out of or in any way connected with the Contract and the relationship which arises here from. The parties acknowledge and agree that this waiver is knowingly, freely and voluntarily given, is desired by both parties, and is in the best interest of both parties. Further, the parties mutually agree that all such proceedings or related proceedings shall be filed in and conducted in a court located in the county of the Owner's central office location.

SECTION IV SCOPE OF WORK

IV.1 INTENT OF PLANS AND SPECIFICATIONS

The Plans, Specifications, Bidder's Documents, Contract Documents, Bidder requirements, and all other agreements are interrelated and their intent is to prescribe a complete improvement. The Contractor shall perform all items of work in the Proposal Forms, Plans, and reduced work or extra work as ordered. The Contractor shall furnish, unless provided otherwise, all material, machinery, equipment, supplies, transportation and labor for the completion of the project. The Contractor shall, for the price bid, perform all work shown on the Plans, required by the Specifications, or as reasonably inferred, requested, or as required for a complete and workable project. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all. Performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the intended results. Not all details are shown, particularly for architectural, equipment, and building details. Where details are not shown, the Contractor shall submit proposed details to Engineer for review, and shall perform the work in accordance with details accepted by the Engineer.

IV.2 ALTERATION OF PLANS AND CHARACTER OF WORK

The Engineer may without notice to the Surety and without change in the unit bid prices, make alterations in the Plans or the work and its quantities to complete the proposed

construction. Alterations shall not be considered as a waiver of any of the conditions of the Contract or Bonds.

IV.3 CHANGE ORDERS

The Engineer may order additional or reduced levels of work or materials. If not listed as a pay item or if not included in the Contract Unit Prices, it will be Extra Work, modified work, or deductive work and the total Contract Price unchanged, increased, or decreased. The Engineer will ask the Contractor for a proposed cost to complete the Work. If the Owner approves the proposed cost, it shall become a part of the Contract. If the Owner considers the price excessive on extra work, the Owner may have the Contractor perform the work on force account. The Contractor shall not, except in an emergency, perform work that he may deem "extra work" without first giving prior written notice to the Engineer. In all circumstances, the Contractor shall take appropriate measures to mitigate extra cost and time. Whenever changes are made, whether they eliminate or deduct work or create extra work or when differing conditions are encountered, credits or payments for a Change Order will be made by use of any one of the following methods:

- (1) Unit prices or combinations of unit prices which formed the basis of the original Contract.
- (2) A lump sum mutually accepted based upon the Contractor's estimate which is properly itemized and supported by sufficient substantiating data to permit evaluation by the Engineer and Owner.
- (3) Actual cost of performing the work (estimated cost for reduced work) plus fifteen (15%) percent of actual cost to cover supervision, overhead, bond, profit, and all other costs. The Contractor shall submit to the Owner itemized cost sheets showing actual cost of performance of the work. Actual costs are defined as Required Labor Costs, Labor Insurance, Workmen's Benefits, and Social Security; Cost of Required Materials; and actual Rental Costs of Required Construction Equipment. When the work is performed under this method, the Contractor shall take appropriate measures to mitigate the costs and time incurred.

The Contractor shall promptly price and provide all other information to the Engineer to allow prompt evaluation and processing of change orders. The Contractor shall devote sufficient attention to change orders and provide adequate resources to start and complete change order work in an expeditious manner. The Contractor shall not be entitled to any reparation or compensation on account of such additional time or extension of time. The Contractor shall not be entitled to extra time or extra compensation associated with his failure to always act in a timely manner.

For unit price items, the quantities shown in the "Items of Work" reflect estimates. The actual quantities will be adjusted during construction to reflect the conditions encountered, or other changes or Owner preferences. Inasmuch as the actual quantities may vary considerably from the quantities listed in the schedule or shown on the drawings, the bidders shall insert prices that represent his actual cost. The Contractor will be paid for only

the quantities actually installed and approved for payment. Modification to quantities with contractually established unit prices does not constitute extra work.

IV.4 CLEANUP

During construction, the Contractor shall continuously keep all dirt, mud, and dust, etc., cleaned from all roads, streets, highways and parking lots, etc. that may be affected by his work. The Contractor shall take whatever measures are necessary to maintain such roads, streets, and highways in a clean and safe condition at all times.

The Contractor shall clear and remove debris from the project sites as a result of construction. He shall maintain and restore in an acceptable manner all property, both public and private, and leave the Right-of-Way, adjacent property, and sites of the improvements in a neat condition.

He shall thoroughly clean all discoloration, mud, dirt, rust, paint, markings, concrete splatter, ink or other lettering, and stains of any nature, etc. from all structures and surfaces, etc.

The Contractor shall take appropriate measures during and throughout construction to prevent discoloration and staining, etc., of all surfaces during construction. He shall provide cleaning of all mud, concrete splatter, oil, and stain-producing materials, etc. during construction as required to facilitate final cleaning. Regardless, all discoloration and staining, etc., shall be totally removed at the completion of construction. The Contractor shall use pressure washing, steam cleaning, chemical cleaning, and whatever additional measures may be necessary to totally remove all traces of all discoloration and all stains of all types, etc. The cleaning shall be conducted in a manner that the final surface appearance is uniform and attractive.

When facilities are cleaned prior to the completion of all work, and then startup, operation, or other activities by the Owner or Contractor result in the need for additional cleaning, such cleaning shall be performed by the Contractor.

These cleaning requirements apply to the entire project including but not limited to all, floors, walls, ceilings, structures, buildings, roofs, windows, enclosures, equipment, walks, sidewalks, steps, stairs, metal surfaces, fiberglass surfaces, plastic surfaces, masonry, paving, concrete, asphalt, and all other surfaces, etc.

These cleaning requirements also apply to all electrical facilities, including but not limited to, inside and outside of electrical panels, conduits, pull boxes, and lights, etc. Protect electrical facilities from concrete splatter when concrete is being placed. Clean all dust and debris, etc. from the inside of all electrical and control panels, etc.

SECTION V CONTROL OF WORK

V.1 ENGINEER

Project communication is generally through the Engineer and the work shall be accomplished under the inspection of the Engineer. The Engineer shall decide questions which arise concerning materials furnished, and work performed. The Engineer shall interpret the Plans and Specifications during the fulfillment of the Contract. The Engineer shall have

authority to decide disputes and mutual right between Contractors. The Engineer is not authorized to increase the obligation of the Owner to the Contractor, except in accordance with the terms of the Contract.

The Engineer may inspect the Work at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the completed Work and to determine in general if the work is being performed in a manner indicating that the Work, when completed, will be in accordance with the Contract Documents. However, the Engineer will not be required to make exhaustive or continuous on-site inspections to check quality or quantity of the Work. On the basis of on-site observations as an engineer, the Engineer will keep the Owner informed of progress of the Work, and will endeavor to guard the Owner against defects and deficiencies in the Work.

The Engineer will not have control over or charge of and will not be responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility. The Engineer will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Engineer will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or of any other persons performing portions of the Work. The Engineer has no authority to supervise or control the Contractor (or subcontractors) or any of their personnel.

The Engineer shall have no obligation or duty to prepare a list of incomplete work until the Contractor has complied with all the requirements of Project Completion. However, should the Engineer produce any preliminary list of incomplete work and provide it to the Contractor, the Engineer is in no way responsible for listing all incomplete or unacceptable items. Such a list may require more time and personnel than the Engineer could devote and may be totally impractical if significant work remains. Whether or not any preliminary list of work is prepared by the Engineer, the Contractor shall not be entitled to any claim whatsoever in regard to such a list. If such a list is given to the Contractor, it shall be solely for the convenience of the Contractor and shall not in any way be considered to be a complete or semi-complete list of incomplete work. The Contractor shall not in any way assume that the list is in any way representative of all the work remaining or is even representative of the importance or magnitude of the remaining work. It is the responsibility of the Contractor to prepare his own listing of incomplete work.

The Engineer will have authority to reject Work which does not conform to the Contract Documents. However, neither this authority of the Engineer nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Engineer to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing portions of the Work.

The Engineer shall review and approve or take other appropriate action on the Contractor submittals, such as shop drawings, product data, samples and other data, which the Contractor is required to submit, but only for the limited purpose of checking for conformance with the design concept and the information shown in the Construction Documents. This review shall not include review of the accuracy or completeness of details, such as quantities, dimensions, weights or gauges, fabrication processes, construction means or methods,

coordination of the work with other trades or construction safety precautions, all of which are the sole responsibility of the Contractor. The Engineer's review shall be conducted in a reasonable time period while allowing sufficient time in the Engineer's judgment to permit adequate review. Review of a specific item shall not indicate that the Engineer has reviewed the entire assembly of which the item is a component. The Engineer shall not be responsible for any deviations from the Construction Documents and in all cases the Contractor shall remain responsible for the deviations. The Engineer shall not be required to review partial submissions, submittals containing significant inaccuracies, submittals not properly and thoroughly coordinated by the Contractor, or those for which submissions of correlated items have not been received.

V.2 CONTRACTOR

The Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by the Owner. The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the Engineer at once.

The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless Contract Documents give other specific instructions concerning these matters.

The Contractor shall be fully responsible to the Owner for all acts and all omissions of the Contractor's employees, Subcontractors and their agents and employees, and all other persons performing portions of the Work for the Contractor. The Contractor shall be solely and fully responsible for all safety associated with all work by his personnel, subcontractors, suppliers, agents, and employees, etc. The Contractor shall be fully responsible for the quality of work of and for supervising all work by his subcontractors, suppliers, agents, and employees, etc. The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Engineer in the Engineer's administration of the Contract, or by tests, inspections or approvals required or performed by persons other than the Contractor. The Contractor shall be responsible for inspection of portions of Work already performed under this Contract to determine that such portions are in proper condition to receive subsequent Work. The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

The Contractor's superintendent, project manager, assistant project manager, and other key project personnel shall be thoroughly knowledgeable regarding all the types of work required to safely and fully complete the entire project in full accordance with all the Plans and Specifications. They shall have a complete understanding of all the potential dangers that may be encountered in the work required by this project. They shall implement and enforce proper safety procedures throughout the entire duration of the construction. They shall

also be very well-experienced in their position in performing similar projects (including water and wastewater projects where the project involves water or wastewater) with the same or greater complexity. All Contractor personnel shall be well-experienced at all tasks they are performing. The full-time project manager shall have acceptable experience being the full-time project manager on at least three prior similar projects of similar type and complexity. For projects where a pump station is to be constructed or modified, the minimum required experience shall be similar pump stations or treatment plants on projects of similar or greater complexity and size. For projects where a treatment plant is to be constructed or modified, the minimum experience shall be treatment plant experience on projects of similar or greater complexity and size.

The Contractor shall utilize office and field personnel who have a full understanding of all the risks and potential dangers that may be associated with all the different types of work involved in the project.

The Contractor shall be solely responsible for insuring that he is in full compliance with all Contract requirements, all requirements in the specifications, and all requirements in the drawings.

V.3 DRAWINGS

The Plans accompanying these Specifications form a part of the Contract and include the drawings showing the location and details of the work insofar as practicable. No change or alteration shall be made in the plans without the written permission of the Engineer. The figure dimensions on the Plans are assumed to be correct, but the Contractor is warned to check carefully all dimensions before proceeding with the construction. Should any errors be discovered, the Engineer's attention shall be immediately directed to same, and his decision in the matter shall be final.

V.4 COORDINATION OF PLANS AND SPECIFICATIONS

These Specifications, the Supplemental Specifications, the Plans, Special Provisions and all supplementary documents are essential parts of the Contract, and a requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and provide for a complete work. All details and requirements related to items of work or equipment, etc., are not shown in one location in the plans or in one specification. The Contractor shall use the complete set of plans and specifications in its entirety to determine and comply with all project requirements. In case of discrepancy, figured dimensions, unless obviously incorrect, shall govern over scaled dimensions. Supplemental Specifications shall govern over the General Specifications. Plans shall govern over Specifications. Special Provisions shall govern over Specifications, Supplemental Specifications and Plans. The latest revision or its replacement of a professional association's specification or regulatory requirement shall govern.

It is the intent of the Drawings and Specifications that the Contractor shall furnish all labor, tools, materials, equipment, transportation and services necessary for the proper execution of the work so shown and/or described, unless specifically noted otherwise. The Contractor shall execute all work so described in full conformance with the Plans, Specifications and all Contract Documents; shall perform all incidental work necessary to

complete the project in an acceptable manner; and shall fully and satisfactorily complete all work, facilities, and improvements, ready for use, occupancy and operation by the Owner in a timely manner. To avoid delaying the schedule, the Contractor shall always spot check by exposing, measuring, etc. the existing facilities early in the project to coordinate the changes as shown or implied by the Contract Documents to existing facilities i.e., piping, equipment, etc.

The Contractor shall not take advantage of errors or omissions in the Plans or discrepancies between the Plans and Specifications. It shall be his responsibility to notify the Engineer of any errors or discrepancies found and ask for a clarification. The Engineer will make the corrections or clarifications. After discovery of such inconsistencies or ambiguities by the Contractor, any work done by the Contractor on any part of the project affected by such inconsistencies or ambiguities before receipt of written corrections from the Engineer shall be at the Contractor's risk.

V.5 SHOP DRAWINGS, SUBMITTALS, AND O & M MANUALS

The Contractor shall provide all shop drawings, setting layouts and schedules, pipe layout and installation schedules, piping installation details, and such other drawings as may be necessary for the proper and satisfactory prosecution of the work in accordance with the intent of the Drawings and Specifications and to secure a complete and operable project capable of satisfactory performance of the service intended. Upon the request of the Contractor, the Engineer may waive this requirement in the case of standard manufactured items named in the Specifications. The drawings shall be submitted in accordance with an orderly schedule based upon time required for fabrication or manufacture, delivery, and installation of items presented in shop drawings which is coordinated with the Contractor's construction schedule and allows the Engineer reasonable time to review submittals including re-submittals. The Engineer's review time will be longer for submittals for complex equipment and for submittals where the Contractor has not completely complied with all submittal requirements.

Shop drawings, Product Data, Samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate the way the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents. When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, the Engineer shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.

The actions required to be taken by the Contractor during the submittal process shall include, but shall not be limited to the following:

(a) The Contractor must thoroughly review and coordinate all submittal data before forwarding such material to the Engineer for his review, shall indicate on the submittal material that he has made such a review, and shall verify such indication or statement by his signature or initials on the Contractor's stamp. The Contractor shall clearly mark all corrections, etc., on the submittals, shop drawings, and O&M Manuals prior to furnishing to the Engineer. If the corrections and markup, etc., are significant, the Contractor shall have the manufacturer or fabricator, etc., prepare a new corrected submittal or shop drawing or O&M Manual prior to furnishing to the Engineer. The new submittal shall also be reviewed

by the Contractor in full accordance with the requirements herein prior to furnishing to the Engineer. Further, all electrical and control submittals shall be thoroughly reviewed and coordinated by the Electrical Subcontractor who shall also stamp and sign or initial those submittals. The requirement for review and coordination by the Electrical Subcontractor of electrical and controls also applies to equipment not being provided by the Electrical Subcontractor. All electrical and control submittals (regardless of the manufacturer or supplier) shall also be thoroughly coordinated by SCADA or instrumentation supplier/manufacturer/system integrator prior to making the first submittal. Any submittals apparently not having been thoroughly reviewed or fully coordinated by the Contractor, and Electrical Subcontractor and system integrator as appropriate, may be returned to him (without review, or with partial review, by the Engineer) for re-submittal. Any comments, questions, corrections, or modifications to the submittal as a result of the review by the Contractor, Electrical Subcontractor and system integrator shall be made to the submittal (by the original producer of the submittal unless approved otherwise by the Engineer) prior to the first submittal to the Engineer. All parties required to review or coordinate the submittals shall utilize personnel who are qualified and experienced at reviewing such submittals.

Each submittal shall be numbered consecutively in order of submission to the Engineer. Resubmittals shall be designated with the original submittal number and the suffixes A, B, C, etc., as required, to indicate consecutive resubmissions.

(b) Submittal items shall be referenced to the applicable Division, Section and page numbers of the Specifications.

(c) Submittal items shall be referenced to sheets (by number) of the Contract Drawings on which such items appear, when applicable.

(d) Any and all particular features of the items submitted that may deviate from those specified and/or shown in the Contract Specifications or Drawings shall be clearly indicated by notations on the submittals and on a separate "Exceptions" sheet submitted by the Contractor.

(e) Submittals shall be legible and should be original information. Copies of facsimiles will not be accepted. The "Exceptions" sheet shall be completed by the Contractor and included with all his submittals. The "Exceptions" sheet shall state "None" if there are no exceptions and shall be included with the submittal. The "Exceptions" sheet must be executed (signed and dated) by the Contractor. The Contractor shall include in the list of exceptions all discrepancies in the submittal. (For example if an item is shown to have one coating in one part of the submittal but a different coating in another part of the submittal, the Contractor shall list such discrepancies as exceptions.) The Engineer shall not be required to find all discrepancies or exceptions as that is the responsibility solely of the Contractor to list all exceptions and discrepancies. The Engineer shall not be required to evaluate any request for an exception unless it is clearly listed on the "Exceptions" sheet included with the submittal.

(f) Submittals for equipment, materials, etc. from different specification divisions shall not be made under a single letter of transmittal.

(g) Submittals shall be stamped "Submittals" on exterior of their envelope or package.

(h) The submittals shall contain all information required for the Engineer to determine, if he desires, if the item being proposed fully and completely complies with all

requirements of the Specifications. Where all such information is not submitted, this shall represent the Contractor's certification that such items are in full compliance with all requirements of the plans and specifications.

(i) The Contractor shall cross out all non-applicable information, models, and options, etc. such that all information remaining pertains specifically to the items being furnished.

(j) The submittal shall show all required information relating to coordination with or connection to other equipment. Properly coordinate the location and orientation of all equipment. Insure equipment does not conflict with other requirements or structures, etc. All control panels and all wiring, including interface with other signals, alarms, or equipment, shall be clearly shown. Clearly show all field wiring and all connections to other equipment including the terminal numbers in other equipment. The Contractor shall fully coordinate all equipment and connections provided for work as shown in the submittal with Electrical, Control, and Panel Suppliers and/or Subcontractors. All electrical and control functions shall be clearly labeled. Provide supplementary notes and descriptions if needed to avoid any confusion.

(k) Equipment shop drawing submittals shall contain the manufacturer's handling and storage requirements, including all maintenance required during storage, type of storage (indoor, outdoor, etc.), heat source, or storage temperature requirements, short term or long term requirements, and all other pertinent storage and maintenance requirements for type of job, location, and exposures. This storage information shall be clearly written, easy-to-understand, detailed, and complete. If preprinted storage instructions are provided, cross out all non-applicable information. Storage instructions shall separately state instructions for short-term storage, long-term storage, and storage after equipment is installed but before placed into fulltime operation. Where motors are part of the submitted equipment, provide the same type of storage information specific to the motors that are provided. Unless clearly stated otherwise by the manufacturer's storage information, storage in utility trailers, or portable storage units (Conex, etc.) shall not be considered indoor or inside storage. Where the required storage requirements are not clear to the Engineer, the equipment shall be stored indoors and inside a permanent structure with conditioned temperature for cooling by air conditioning and heating.

(l) Show anchor bolts and installation requirements. Specifically list all spare parts that will be provided. Specifically list all installation, startup, and training services that will be provided.

(m) Provide all other information requested by Engineer to assist him in understanding the items being provided, the operation of the equipment and controls, the submittals, and the coordination with other equipment.

(n) Provide manufacturer's certification and Contractor's certification that all submittal requirements are fully complied with except as specifically noted. These certifications shall be on a form prepared by and furnished by the Engineer.

(o) Where product samples are submitted for review, the Contractor shall submit a minimum of three samples (i.e. in triplicate) which will be retained by the Engineer/Owner. The samples shall be clearly labeled by permanent labeling to identify the item, date, submittal number, model and/or color, etc., as applicable. All colors to be utilized on the project shall be submitted at one time to coordinate and facilitate color selection by the

Owner. Where required, color charts or samples shall be included in the color submittal for the following items as a minimum: paints, thorocoat, sealants, caulk, brick, mortar, block, fans, louvers, doors, and windows, and other similar items, etc. Provide color samples for other items as applicable or as required.

(p) All equipment manufacturers shall include in their submittal a Submittal Certification Form prepared by the Engineer and executed by the manufacturer's engineer in responsible charge stating that (1) they have responsible control over the submittal, (2) they have thoroughly reviewed and understand the project requirements and the submittal requirements, (3) the submittal is in full accordance with submittal requirements contained in the General Specifications except as the manufacture itemizes below, and (4) an acknowledgement that the submittal will not be reviewed by the Engineer if it is not in full accordance with all submittal requirements.

(q) The equipment manufacturer's Submittal Certification Form prepared by the Engineer shall include a space which shall be executed by the Contractor stating that (1) he has carefully reviewed the submittal, (2) it has been reviewed and coordinated by Electrical Subcontractor and SCADA/system integrator, (3) it has been thoroughly coordinated as required, (4) the paint system proposed in the submittal meets all the project painting specifications including but not limited to preparation, coating system, number of coats, thickness, color, (5) the submittal contains long term and short term storage instructions specific for the project including but not limited to whether or not equipment must be stored in conditioned space, heated space, or only out of the weather, etc. (In the absence of clearly written instructions to the contrary, equipment shall be stored in heated and air conditioned space.), (6) the submittal contains listing of all spare parts and these are in conformance with the specifications, (7) the submittal states the manufacturer's field services being provided, (8) the submittal states that all exceptions are listed on an attached sheet, and (9) an acknowledgement that the submittal will not be reviewed by the Engineer if it is not in full accordance with all submittal requirements.

(r) The equipment manufacturer's Submittal Certification Form prepared by the Engineer shall include a space which shall be executed by the Electrical Subcontractor stating that (1) he has carefully reviewed the submittal, (2) it has been reviewed and coordinated by Electrical Subcontractor and SCADA/system integrator, (3) it has been thoroughly coordinated as required, (4) the submittal clearly shows all connecting wiring (including power, control, instrumentation, and SCADA) including but not limited to voltages, power sources, and (where applicable) signal types. This Electrical Subcontractor certification is not required on items that have no electrical or wiring components.

The Engineer shall not be required to review submittals that are not in full compliance with all the submittal requirements. However, should the Engineer elect to review such submittals, the review time will be longer.

The Engineer does not necessarily review all details of all submittals. For some submittals, the Engineer's review may be very limited. Regardless of the Engineer's review or limited or partial review, the Contractor remains fully responsible for full compliance with all requirements of the plans and specifications.

Unless a greater number is called for in various portions of these Specifications the minimum number of copies of submittal data shall be six (6).

Deviations from the Drawings and Specifications shall be called to the attention of the Engineer by the Contractor at the time when such shop drawings or other drawings are first submitted to the Engineer for his consideration. The Engineer's review of any data shall not release the Contractor from responsibility for such deviations, or any subsequent deviations not noted by the Contractor or the Engineer. Any disclaimers or similar statements in the submittals shall not relieve the Contractor, Subcontractor, manufacturer, or equipment supplier of their responsibility.

The Contractor shall coordinate and verify dimensions, arrangements, configurations, and orientation, etc., to insure that all items fit properly in the space available and are accessible for maintenance and replacement, etc.

Shop drawings and other drawings submitted for review by the Engineer shall bear the Contractor's certification. The certification shall represent that he has reviewed, checked, and approved such drawings; that they are in harmony with the requirements of the project and with the provisions of the Contract Documents; that he has verified all field measurements, construction criteria, materials, catalog numbers, and similar data; and that the work represented by the shop drawings is recommended by the Contractor and that the Contractor's Guaranty will fully apply. The Contractor shall insure that all markups in the submittal and all comments returned with the submittal are properly incorporated in all products delivered to the project. Regardless of the Contractor's procedures and by virtue of the Contractor submitting the data to the Engineer, he thereby certifies the above and that he has coordinated the submittal with his work. If the Engineer marks up the shop drawing or submittal, the Contractor shall carefully review, check, and coordinate the Engineer's comments prior to releasing the shop drawings and shall promptly notify the Engineer if he disagrees or doesn't understand the markings. Regardless, the Contractor remains fully and solely responsible for compliance with the plans and specifications.

The finished assemblies represented by the shop drawings and other such drawings are required to be in conformance with the standards of the Occupational Safety and Health Administration, wherever applicable. Manufacturer or contractor shall prepare detailed installation drawings for each assembly.

The Contractor shall submit Operation and Maintenance (O&M) manuals for all equipment of all types provided for the project. This also includes but is not limited to all electrical equipment, monitoring equipment, instrumentation, and controls, etc. O&M Manuals shall be handled the same as other submittals, and shall be accompanied by the same Submittal Certification Form executed by the Manufacturer and the General Contractor. The manual shall contain sufficient drawings, with all equipment components clearly labeled and identified, such that maintenance personnel can promptly determine each and every individual component requiring maintenance and its location as discussed in the manual. The drawings shall be detailed and easy to understand. The manual shall address all recommended maintenance as well as all safety precautions and procedures. The manuals shall fully describe all the features of all equipment. The controls and panels, including but not limited to all alarms, lights, and switches, etc., shall be clearly explained. The O&M manuals shall have a table of contents and be tabbed, bound, and arranged as necessary for easy reference and use. The Contractor shall review the O&M manuals to insure compliance with all submittal requirements prior to submitting them to the Engineer. The manuals shall be revised as

necessary prior to making submittal to the Engineer. Two initial manuals shall be submitted a minimum of 90 days prior to equipment startup for Engineer review. The manuals shall be customized specifically to this project and specific for the equipment actually provided. If the O&M manual contains references to equipment components or parts or material different from that actually furnished, the Contractor shall cross out the inapplicable references or sections. The manual shall not include references to “optional” features or components, etc., without clearly and specifically clarifying whether such an option was actually provided. If an optional feature is provided, delete references to “optional”. If an optional feature is not provided, cross out references to the feature. The submitted manual will not be considered acceptable if it contains inapplicable references that are not marked out. Any O&M manuals apparently not having been thoroughly reviewed or fully coordinated by the Contractor, may be returned to him (without review, or with partial review, by the Engineer) for re-submittal. The Contractor shall submit originals or very high quality copies.

The O&M manual for a piece of equipment shall contain an Equipment Maintenance Summary Form that summarizes all routine maintenance requirements of the equipment provided in a concise, easy to follow format. The form shall also clearly indicate maintenance frequency, required lubricants, and lubricant quantity. The form shall also clearly show any required initial oil changes due to the use of different lubricants for storage or due to short change intervals at startup. The form shall be located in its own tabbed division and the tab shall be clearly labeled “Maintenance Summary.”

The exact location of every lubrication point or adjustment point, etc, shall be clearly shown and labeled in high quality drawings or photographs. The drawings or photographs shall be such that maintenance personnel can quickly discern the exact location of all items requiring attention. Provide multiple drawings (both overall system and detailed) or photographs where helpful for immediate understanding.

All O&M manuals shall be organized, arranged, and tabbed to allow operators and maintenance personnel to easily and promptly find all needed information. Provide whatever features, figures, and drawings, etc., may be desirable for a very user-friendly manual. Where the manual pertains to multiple models of non-identical equipment, each separate model shall be in its own tabbed division of the manual and the division shall be clearly labeled and contain all the information, drawings, and maintenance summary for that specific model.

After the O&M manual is accepted by the Engineer, the Contractor shall submit six (6) copies of the final O&M Manual.

V.6 DATA FOR SHOP DRAWINGS

The Contractor shall submit, for review by the Engineer, complete catalog data for materials and every manufactured item of equipment and all components to be used in the work, including: specific performance data, material description, rating, capacity, working pressure, material gauge or thickness, brand name, catalog number, general type, and other pertinent data. Where equipment or material is of a minor nature, the Contractor shall furnish the Engineer a complete list, giving names of manufacturers, catalog numbers, and other applicable data. Submittals shall be compiled by the Contractor and reviewed by the Contractor and Engineer before equipment is ordered. Where details of items of equipment

are affected by details of items of other equipment, submittals for such associated items of equipment shall be compiled by the Contractor and reviewed by the Contractor and Engineer before any such associated items of equipment are ordered.

Catalog data for equipment and materials submitted by the Contractor shall not supersede the Contract Documents. The Contractor shall check the equipment, materials, and work described by the catalog data against the requirements set forth in the Contract Documents in order to determine the existence of any errors or deviations. The review by the Engineer shall not relieve the Contractor of the responsibility for correcting and/or remedying such deviations from the Drawings and/or Specifications, either by redesign or by submitting equipment or materials fully meeting the requirements of the Contract Documents. The Contractor shall, in writing, call the attention of the Engineer to equipment and materials deviations at the time of the submittal. If the equipment or material should be accepted, the Contractor will ensure the proper fit of the equipment in the work and guarantee that the equipment or material is suitable for the service intended and that the performance of the equipment or material, with respect to life and efficiency, will equal or exceed that of the equipment or material specified. The form, extent and specifics of the Contractor's Guaranty shall be subject to the decision of the Engineer. Review by the Engineer of the Contractor's submittals of catalog data shall not relieve the Contractor of responsibility for errors in the submittals.

Engineering concurrence of all data described above is a prerequisite to the ordering of the equipment or materials by the Contractor, and, in the case where shop drawings may be required, the acceptability of the shop drawings is also a prerequisite to the manufacture of the item.

V.7 COOPERATION WITH UTILITIES

The Owners or Operators of Private or Public utilities shall have access to the work for the installation or repair. When taking any utilities out of service for construction purposes, the Contractor shall attain the permission and coordinate and comply with whatever requirements the utility Owner may have to minimize the time the utility must be removed from service. This may include such requirements as performing the work at night, weekends, or early morning hours (midnight and later) as may be designated by the utility Owner. The number of shutdowns shall be minimized. This may require two or more separate, independent crews both working simultaneously. All shutdowns shall be carefully planned by the Contractor to insure minimal disruption with a written plan submitted by the Contractor. Backup equipment and materials shall be provided by the Contractor as appropriate or required. No compensation shall be allowed because of the delay or interference caused by such work.

V.8 COOPERATION OF THE CONTRACTOR

The Contractor will be supplied with three copies of the Plans and Specifications. The Contractor shall have on the Work, at all times, one copy of the Plans and Specifications. The Contractor will cooperate with the Engineer, Owner and other Contractors.

The Contractor shall have a competent Superintendent with authority to direct the work as required by the Engineer. The Superintendent shall be furnished irrespective of the amount of work sublet and shall have authority over all subcontract work.

It may be necessary that certain items of work be completed, fully tested and placed in service before other facilities can be constructed. This often applies when the project involves work associated with existing treatment plants, pump stations, or lift stations, etc. The plans and specifications may not call out any or all of the work elements where such sequencing is necessary. It is the Contractor's duty to identify any such or similar sequencing and implement such sequencing at no additional cost or time to the Owner. The structures and facilities that the Contractor shall have completed and ready for operation in order to fulfill the above requirement shall be scheduled with the Engineer. After all testing and equipment adjustment has been performed to the satisfaction of the Engineer, the facilities shall be placed in operation with the assistance of the Contractor. The personnel of the Owner shall then perform all operating functions in accordance with instructions previously received from equipment manufacturers. The Contractor shall be required to keep the existing facilities and place new units in operation in a manner to best keep the existing facilities operating. All start-up shall be scheduled with the Engineer.

V.9 SITE ENGINEERING

The Plans show the lines and grades for the prosecution of the work. The Contractor shall be fully responsible for construction to the alignment, elevations and dimensions and shall provide the stake-out of the project off of existing bench marks and stations. The Contractor shall be held responsible for the preservation of all stakes and bench marks. If, in the opinion of the Engineer, any of the construction stakes or bench marks have been carelessly or willfully destroyed or disturbed by the Contractor, the cost to the Owner of replacing them shall be charged against the Contractor.

The Contractor shall set the elevation of all structures, tanks, pipes, and gates, etc. The Contractor shall be solely responsible for verifying all such elevations prior to pouring concrete, etc. The Contractor shall be solely responsible for the satisfactory removal and replacement of any structure, tank, pipe, or gate, etc. that is later determined not to be in full compliance with contract requirements.

The Contractor shall furnish all materials for marking and maintaining points and lines and shall furnish such labor as may be required. When required by the Contract Documents, the Contractor shall provide independent and adequate building facilities to perform field laboratory and/or office for inspection. The Plans and Standard Specifications will indicate the requirements for any required facilities.

V.10 INSPECTORS, ASSISTANTS, AND REPRESENTATIVES

Inspectors, assistants or representatives shall not be authorized to alter the Plans and Specifications; nor shall they act as foreman for the Contractor, or interfere with the management of the work. Any advice which they may give the Contractor shall not be construed as binding the Engineer or the Owner in any way, nor releasing the Contractor from fulfilling all of the terms of the Contracts. Inspectors, assistants, and representatives are not authorized to supervise or control the Contractor or subcontractor personnel or their work.

V.11 INSPECTION OF THE WORK

The Contractor shall furnish the Engineer with facility for ascertaining whether or not the work performed and materials used are in accordance with the requirements and intent of the Contract. At any time before final acceptance of the work, the Contractor shall, if the Engineer requests, remove or uncover such portions of the finished work as the Engineer may direct. After the examination, the Contractor shall restore the work to the standard required by Specifications. If the work is acceptable and if the Engineer had been given ample opportunity to inspect the work prior to its being covered, the uncovering or removing shall be paid for as Extra allowed the Contractor. No work shall be done nor materials used without providing the Engineer the opportunity to inspect. Failure to reject any defective work or material shall not prevent later rejection whether or not such Work is fabricated, installed, or completed. Failure to detect or reject defective work shall not relieve the Contractor of his responsibilities nor impose any liability on the Engineer. Inspection is not acceptance and shall not constitute acceptance by the Owner. The Contractor is solely responsible for performing all the work in full accordance with all the requirements of the Contract.

V.12 DEFECTIVE WORK

Defective work shall be removed and replaced without extra compensation. Should the Contractor fail to remove defective work when so ordered by the Engineer, the Engineer may withhold payment. Any work not in full compliance with the requirements of the plans and specifications shall be considered defective work.

In any case, the amount previously paid to the Contractor for defective work may be reduced at any time the Owner determines it is in his best interest. The Owner may also, at any time, deduct amounts and require the Contractor to reimburse amounts and withhold further payment for all costs associated with the complete correction of the defective work to the full satisfaction of the Owner. These deductions or reimbursements shall include, but not be limited to, the full cost of satisfactorily removing all work not in full compliance with all Contract requirements, as well as any other work that must be removed or modified in order to correct or replace the work in non-compliance.

If the Owner prefers to accept Work which is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as determined by the Owner to be appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

V.13 UNAUTHORIZED WORK

Work done in excess of that provided by the lines and grades shown on the Plans or as given by the Engineer, or any extra work done without the written authority of the Engineer, will be considered as unauthorized, and will not be paid for. If Unauthorized Work is directed to be removed it shall be handled as provided by Article V.12.

V.14 MAINTENANCE OF THE WORK

The Contractor will be required to continuously maintain the work under the Contract from the date of Notice to Proceed until the work is completed and accepted. The work shall be maintained in a manner which maximizes the safety and convenience of all persons in the vicinity of the work. Maintenance work, until finally accepted, shall be included in the Contract Prices. The Contractor shall restore without compensation, all damages to the Work before its acceptance. During suspension of Work, the Contractor shall be responsible for all materials and construction.

The failure of the Contractor to comply with maintenance of the Work may result in notification by the Engineer to the Contractor's superintendent or his employee in charge to comply with the required maintenance. If the Contractor fails to remedy unsatisfactory maintenance within three (3) days after the date of issuance of this notice, the Owner may proceed to maintain the work. However, regardless of whether or not the Contractor is notified of his failure to maintain the work, and regardless of whether or not the Owner maintains the work, it shall remain the responsibility, solely, of the Contractor to maintain the work. The entire cost of this maintenance will be deducted from monies due the Contractor.

This requirement applies to all aspects of the work. This includes but is not limited to such items as site, materials, equipment, supplies, cleaning, and electrical components and work, etc.

V.15 RECORD DOCUMENTS

Engineer shall provide to the Contractor, one complete set of Contract Documents to be used by the Contractor for the purpose of documenting as constructed information for all elements of Work. These as constructed documents generated by the Contractor may then be used by the Engineer in preparing Record Drawings for the Project.

The Contractor shall make legible and accurate notations to the drawings to indicate changes. All changes shall be recorded as construction progresses and within 24 hours of a change being made. Work shall not be covered, concealed, or otherwise made inaccessible until all information has been recorded by the Contractor. Record Documents shall be maintained in a clean, dry, legible, and orderly fashion and shall not be used for construction purposes. Record Documents shall be clearly labeled: "Record Documents, Not for Construction".

Changes shall be recorded in erasable colored pencil. Alternate colors may be used to emphasize different types of changes. Changes shall be "clouded" to draw attention to effected area(s). Changes shall be legibly marked and shall include descriptions when necessary. Changes shall be dated and initialed by the Contractor.

Record Documents shall be made available to the Engineer or the Owner at all times. The Engineer may review and approve, on a monthly basis, the Record Documents. Portions of the Record Documents determined to be incomplete or incorrect by the Engineer, shall be corrected by the Contractor before monthly Pay Requests are approved. Before requesting final payment, Contractor shall provide Engineer with a completed set of clean, fully legible Record Documents. Record Documents may be reviewed by Engineer for clarity and completeness; however, the Contractor has sole responsibility for the correctness, and

accuracy of the Record Documents. The Owner may withhold final payment until the Record Documents are complete, accurate, and have met all other requirements specified herein.

Record Documents required by this Section shall be in addition to any other Record/As Built requirements contained elsewhere in the Plans and/or Specifications.

SECTION VI CONTROL OF MATERIALS

VI.1 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS

All materials or equipment used on the Work shall meet the requirements of the Specifications. The source of supply of the materials or equipment shall be approved by the Engineer before delivery is started. If it is found that products from a source are unacceptable, the Contractor shall furnish materials from other sources.

The Contractor shall warrant to the Owner and the Engineer that, unless otherwise specified, all materials and equipment furnished under this Contract shall be new, and both workmanship and materials shall be of good quality, free of faults and defects, and in conformance with the Contract Documents. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials. In selecting and/or approving equipment for installation in the Project, neither the Owner nor Engineer assume responsibility for injury or claims resulting from failure of the equipment to comply with applicable federal, state, and local safety codes or requirements, or the safety requirements of a recognized agency, or failure due to faulty design concepts, or defective workmanship and materials. Material and/or equipment damaged by any cause during the construction period shall be subject to rejection by the Engineer; reconditioning and/or repairing material and/or equipment is not acceptable.

VI.2 SAMPLES, TESTS FOR SPECIFICATION COMPLIANCE

All materials shall be approved by the Engineer. Materials used without prior approval shall be considered unauthorized and will not be paid for. Tests for suspected faulty materials, work, or tests not mentioned in this Section shall be conducted by an independent testing laboratory approved by the Engineer. Such tests shall be paid for by the Contractor. Certified copies in duplicate of each test shall promptly be furnished the Engineer. Laboratory testing common to the project shall be paid by the Owner at a laboratory of his choice, unless specified otherwise. These tests include concrete breaks, inspection, soil tests, and liner tests as defined in these Specifications.

The Contractor shall cooperate, coordinate, and assist the Engineer with all testing the Owner deems appropriate for the project. Make appropriate arrangements with the Engineer and provide safe access, etc., so that all such testing can be preformed. There shall be no extra time or payment associated with this work. If retesting is necessary due to not passing on the first test, all costs associated with retesting shall be the responsibility of the Contractor.

Acceptance of materials by the Engineer shall not relieve the Vendor, or the Contractor from repairing or replacing defective materials. Any materials rejected at the site

of the work shall be removed from the premises by the Contractor in accordance with Articles V.12 and V.13.

VI.3 SALVAGE MATERIALS AND UNUSED EQUIPMENT AND MATERIALS

All existing materials and/or equipment removed and not required to be reused or relocated remains the property of the Owner. These materials and equipment will be stored orderly at the job site in accordance with the Owner's instructions. All unusable items as determined by the Owner will be disposed by the Contractor as excess materials.

All unused construction materials or equipment remaining at completion of the project will remain the property of the Contractor unless the Owner has purchased unused property through the Contract and has rightful ownership or agrees to purchase or accept ownership of materials or equipment. Making payment of stored materials throughout the job does not constitute the Owner's willingness to purchase unused materials or equipment at the end of the Work.

VI.4 STORAGE OF MATERIALS AND/OR EQUIPMENT

Materials and/or equipment to be incorporated in the work shall be properly housed or otherwise protected from corrosion and damage so as to ensure the preservation of their finish, quality, and fitness for the work. Where considered necessary to secure proper protection, the materials shall be placed on racks, platforms, or hard clean surfaces not subject to surface drainage. Factory finished items shall be stored above ground, covered, individually sealed, or housed indoors as required. Equipment shall as a minimum be stored and maintained in accordance with the manufacturer's recommendations, or in accordance with the Plans and Specifications if those storage requirements are more stringent. Equipment that has been installed but not being operated by the Owner shall be stored and protected by the Contractor in accordance with the recommendations of the manufacturer and plans and specifications. The Contractor shall be aware of the potential difficulties involved in the storage of equipment fitted with bearings which may suffer damage from a long period of idleness, and shall take such precautionary measures as may be required to preserve the life expectancy of the bearings. Materials not properly stored, housed and maintained in condition for service as intended will be deducted from the stored materials and will not be incorporated in the work. Full instructions on storage should be provided with the shop drawings (See Sections V.5 and V.6). The Contractor shall be solely responsible for equipment that is damaged due to flooding or improper storage.

No equipment (including but not limited to process equipment, electrical equipment, HVAC equipment, or mechanical equipment, etc.) shall be stored in a location where it may be flooded or otherwise unintentionally submerged, etc.

Stored materials and equipment shall be located and arranged so as to facilitate observation. When the Contractor desires to accept delivery of material or equipment which cannot be accommodated or housed on the site of the work he may, but only with the permission of the Owner, store such material and/or equipment in an insured and bonded warehouse within a 60 mile radius of the project site. Any agreement for rental of such storage space by the Contractor shall contain a provision that the material and/or equipment

thus stored shall not be subject to a lien for payment of storage. A certificate of insurance shall be furnished. The storage facility shall be climate-controlled, if appropriate. The Owner shall be protected against loss of or damage to such stored equipment by the terms and endorsements of the Contractor's insurance policies.

The Contractor shall develop an inventory of stored equipment showing the maintenance required during storage and containing a place for the Contractor to sign off when the maintenance is performed. The maintenance provided shall be stated, dated, and signed by the person performing the work. The Contractor shall notify the Engineer's representative sufficiently prior to performing the work to allow the representative to accompany the Contractor during the maintenance. The Stored Equipment Maintenance Inventory shall be submitted to the Engineer with each monthly pay request. If there is no pay request during a month, the Contractor shall submit the updated inventory monthly until project acceptable.

VI.5 U.S. PRODUCTS PREFERENCE

The successful Bidder (Contractor) shall comply with ALA. CODE §39-3-1 (1975), shall agree to utilize in the execution of the Project, materials, supplies and products manufactured, mined, processed or otherwise produced in the United States or its territories, if the same are available at reasonable and competitive prices and not contrary to any sole source specifications. It is further stipulated that a breach of the foregoing provision of this agreement by the Contractor in failing to utilize domestic products shall result in a downward adjustment in the Contract price equal to any realized savings or benefit to the Contractor.

VI.6 USE OF DOMESTIC STEEL

The attention of all Bidders and that of the successful Bidder (Contractor) is drawn to ALA.CODE §39-3-4 (1975), requiring the use of steel produced within the United States for municipal construction projects when specifications in the construction contract require the use of steel and do not limit its supply to a sole source. This provision is subject to waiver if the procurement of domestic steel products becomes impractical as a result of national emergency, national strike or other causes. Violations of the use of domestic steel requirements shall result in a downward adjustment in the Contact price to equal any savings or benefit to the Contractor.

SECTION VII LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

VII.1 LAWS TO BE OBSERVED

The Contractor shall comply with all laws, regulations, and permits. The Contractor and his Surety shall indemnify and save harmless the Owner and the Engineer and all of their representatives or agents against any claim or liability arising from or based on the violation of any law, regulation, or permit requirement, whether by himself, his employees, or his subcontractors. The Contractor agrees to indemnify and/or reimburse the Owner for any fines, violations, charges, suits, or sums of money imposed by the Alabama Department of Environmental Management (ADEM), Environmental Protection Agency (EPA), or any agency overseeing and/or issuing regulation, law or permit for any violation arising out of the

work by the Contractor pursuant to this agreement. The Contractor agrees to reimburse the Owner for all costs the Owner incurs due to the Contractor's non-compliance or alleged non-compliance with laws, regulations, and permits.

VII.2 PERMITS AND LICENSES

The Owner will procure general permits such as those required by highway departments or other utilities to allow the proposed facilities to be installed on public rights of way or privately owned rights of way; however, the Contractor shall procure all other required permits and licenses, pay all royalties and fees, and give all notices necessary. Special or supplemental permits for the Contractor's means and methods of construction such as blasting permits shall be the full responsibility of the Contractor. An exception for blasting permits is discussed in Section VII.13.

Requirements from permits acquired by the Owner for construction will be strictly adhered to by the Contractor with all stipulations within the Contractor's control being fulfilled. The Contractor shall be solely responsible for satisfying all requirements and costs of all permits and licenses acquired by the Owner regardless of whether such requirements are imposed on the Owner or are imposed directly on the Contractor. This includes, but is not limited to, any permit issued by utilities, railroad, streets or highways, governmental agencies, or regulatory agencies, etc. This shall include, but by no means be limited to, such requirements as bonds, insurance, indemnification, flagmen, and traffic control, etc. The Contractor shall obtain special or supplemental permits required by agencies to complete the work in accordance with Section VII.13. The Contractor shall indemnify the Owner and Engineer in accordance with Section VII.1.

VII.3 PATENTED DEVICES, MATERIALS AND PROCESSES

If the Contractor uses any design, device, material, or process covered by letters, patent or copyright, the Contractor and the Surety shall indemnify and save harmless the Owner and the Engineer and all their authorized representatives from any suits, or claims for infringement.

VII.4 PUBLIC CONVENIENCE AND SAFETY

The Contractor is required to conduct his work as to ensure the least possible obstruction to traffic, to ensure the least possible inconvenience to the general public, businesses, and the residents in the vicinity of the work, and to ensure the protection of persons and property. Maintain continuous access to businesses (during and near to hours of operation) and hospitals, etc. No disturbing noise will be allowed particularly in residential areas between the hours of 9:00 p.m. until 7:30 a.m. unless an emergency occurs. Permission of the proper authority is required before any road or street is closed to the public. The maintenance of continuous accessibility of fire-fighting equipment to fire hydrants and to such areas as are necessary for the provision of fire protection is a requirement of the Fire Department or the authority having jurisdiction. The provision of temporary measures as required to ensure the safe use of sidewalks and streets by the public is the responsibility of the Contractor. The proper functioning of all gutters, sewer inlets, drainage ditches and irrigation ditches is to be ensured by constant clean-up along with the work and by provision of

temporary facilities where required for the maintenance of natural surface drainage. The implementation of all such maintenance measures and safety precautions is the responsibility of the Contractor. Respond promptly and appropriately to all complaints. Coordinate and cooperate with affected property Owners and keep them advised of work schedules and activities.

No road, sidewalk or vehicle path shall be closed by the Contractor except by permission of the Engineer, and while closed the Contractor shall maintain traffic through or around the Work. The Contractor shall notify emergency agencies and the Engineer before the starting of construction of any situations that might inconvenience or endanger traffic. All right-of-ways shall be kept continuously open and maintained in passable and safe condition. The Contractor shall clean-up and place streets back in service as soon as possible. Paving shall be patched as soon as possible. Use cold-mix asphalt as temporary patch if required by plans or specifications, or if helpful in continuously maintaining public safety or convenience.

The convenience of the general public and of residents along the road or other travelways shall be provided for in a satisfactory manner. Where roads or streets are not available for use as detours, traffic shall be permitted to pass through the Work. The traveling public shall have precedence over Contractor's vehicles, and shall not be delayed for the convenience of the Contractor. The Contractor shall provide flagmen whose sole duties shall consist of controlling the movement of public traffic. No additional charges will be paid for traffic routing or control.

The Contractor shall provide and maintain temporary roads to provide access to the Work, driveways, houses or buildings affected by the work. Temporary bridges for pedestrians shall be provided over surfacing, pavement, sidewalks or muddy areas.

The provision by the Contractor of warning signs, warning lights, barricades and watchmen is subject to the requirements of "Safety and Health Regulations for Construction" of the Occupational Safety and Health Administration, U. S. Government Department of Labor; the State "Manual on Uniform Traffic Control Devices for Streets and Highways"; and other authorities having jurisdiction in the areas and traffic control. The Contractor is solely responsible for satisfying all safety and traffic control requirements of authorities concerned with or affected by this work. The Contractor shall provide, install, and continuously maintain all traffic control and other safety features, etc. as may be desirable for the protection, safety, and convenience of the public. The Contractor is solely and fully responsible for protecting the public. This responsibility applies both during working hours and non-working hours, 7 days per week, for the entire duration of the project.

VII.5 PROTECTION AND RESTORATION OF PROPERTY, STREETS AND LANDSCAPE

The Contractor shall not enter upon private property without obtaining permission from the owners and lessees. The Contractor shall be responsible for the preservation of all public and private property. The Contractor will obtain necessary information of existing utilities, and shall give notice to the owners or authorities at least forty-eight (48) hours before his operations will affect such property. The Contractor shall not interfere with the operation of utilities. The Contractor shall at his own expense, take necessary precautions to avoid interruption of service or damage.

Work under this Contract shall include the restoration of all paved areas and macadamized roadways to their original condition at his own expense. If the Contractor fails to restore disturbed areas promptly, the Owner, after giving three (3) days' written notice, may have the pavement restored and deduct cost from the payment due the Contractor. However, any such action or lack of action, by the Owner shall not relieve the Contractor of any of his obligations under this Contract, including but not limited to safety. The Contractor must conform to the prevailing State Highway Code and Railroad Company requirements at his own expense. The Contractor shall maintain roads, streets, and highways affected by his work in a safe condition at all times.

When damage or injury is done to public or private property by the Contractor, he shall repair such damage or injury so that it is equal or better condition to the property before damage.

VII.6 INDEMNIFICATION

To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Engineer, Engineer's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself) including loss of use resulting there from, but only to the extent caused in whole or in part by negligent acts or omissions of the Contractor, a Subcontractor, equipment or material supplier or manufacturer, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder.

Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described herein.

In claims against any person or entity indemnified under this Section by an employee of the Contractor, a Subcontractor, equipment or material supplier or manufacturer, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this Section shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor, Subcontractor, or equipment or material supplier or manufacturer under workmen's compensation acts, disability benefit acts or other employee benefit acts.

The obligations of the Contractor under this Section shall not extend to the liability arising out of active negligence, sole negligence, willful misconduct of, or for defects in design furnished by, the Owner and Engineer, their agents, consultants, and/or employees provided that such negligence or defect are the primary cause of the injury or damage.

The Owner may retain money due for actions or claims for injuries or damages until settled. The Owner and/or the Engineer, or their representatives shall not be liable to the Contractor for damages or delays resulting from work by third parties or by injunctions or other restraining orders obtained by third parties.

VII.7 INSURANCE

All bidders shall have their insurance provider thoroughly review all insurance requirements well prior to Bid opening to ensure the Contractor includes sufficient monies to meet all insurance requirements. This review by the insurance provider shall be detailed and complete. The review shall determine pricing and availability of all specific insurance requirements. This review shall determine all additional and special insurance that the Contractor must acquire to be in full and complete compliance with all insurance requirements. Prior to bidding, all bidders shall furnish to their insurance providers complete copies of all insurance requirements contained in the General Specifications Section of these Contract Documents, all insurance requirements in other sections of the documents (including but not limited to the Special Provisions and Supplemental General Conditions), and those required by permits, etc. See the Special Provisions for additional insurance requirements.

(a) General: The Contractor shall purchase and maintain such insurance as will protect him from claims set forth below which may arise from the Contractor's execution of the work, whether execution be by the Contractor, any Subcontractor, any one directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable. The Contractor and/or any subcontractors waive subrogation as to the Owner, its officers, agents, employees, consultants, and Engineer (Municipal Consultants, Inc.). This waiver of subrogation shall apply to all policies, including but not limited to, General Liability, Automobile, All-Risk (Builder's Risk), Worker's Compensation, and Umbrella Insurance. This shall be stated as such in all policies and on all certificates. The full aggregate limits shall apply per job or contract. This shall be stated as such in all policies and on all certificates. Insurance for Contractor or any of its agents, employees or subcontractors shall cover both on-site and off-site operations under this Contract and insurance coverage shall extend to any motor vehicles or other related equipment, irrespective of whether the same is owned, non-owned or hired. Coverages shall include, but not be limited to:

- (1) Claims under worker's compensation, disability benefit and other similar employee benefit acts;
- (2) Claims for damages because of bodily injury, occupational sickness or disease, or death of employees;
- (3) Claims for damages because of bodily injury, sickness or disease, or death of any person other than employees;
- (4) Claims for damages insured by usual personal injury liability coverage which are sustained (i) by any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor, or (ii) by any other person;
- (5) Claims for damages because of injury, destruction, or loss of use of tangible property; and
- (6) Where work under this Contract includes any exposure to navigable waterways and/or adjoining water areas, the Contractor shall obtain

insurance coverage to include Federal Longshoreman's and Harborworker's Act (USL & H) and Federal Jones Act or other insurance required by other applicable law or regulation.

The Contractor's insurance shall cover both On-going Operations and Completed Operations related to the project. Coverage for On-going Operations shall be in effect from the beginning date of the Contract until final payment is made to the Contractor by the Owner. Coverage for Completed Operations shall be in effect for a minimum period of one (1) year after final payment is made to the Contractor by the Owner and/or any time the Contractor is working on the project after final payment has been made to the Contractor by the Owner. There shall be no interruption of insurance coverage during the transition from On-going Operations to Completed Operations.

Maintenance of proper insurance coverage is a material element of the Contract. Failure to maintain, renew and/or provide evidence of renewal may be treated by the Owner as a material breach of Contract. The lack of insurance does not negate the Contractor's obligations under this Contract including, but not limited to, indemnification of the Owner and Engineer from any damages resulting from the Contractor's failure to obtain, maintain or renew the minimum insurance policies and endorsements required herein.

(b) Certificate of Insurance: Original Certificates of Insurance acceptable to the Owner shall be filed with the Owner prior to the Owner's execution of the Contract. These Certificates shall contain the following:

- (1) Unconditional provision that coverage afforded under the policies will not be canceled unless at least thirty (30) days prior Written Notice has been given to the Owner and Engineer.
- (2) The Contractor's and any subcontractor's general liability, automobile liability insurance, and umbrella (and/or excess) insurance shall endorse the Owner, its officers, agents, employees, consultants and Municipal Consultants, Inc., as additional insureds for any claims arising out of work performed under this Contract. Umbrella (and/or excess) liability shall follow form to the underlying insurance. All insurance shall be primary without contribution from any insurance or deductibles available to the additional insureds.
- (3) There shall be a statement for all policies that the Contractor and any subcontractor waive subrogation as to the Owner, its officers, agents, employees, consultants and Municipal Consultants, Inc.
- (4) There shall be a statement that full aggregate limits apply per job or contract.
- (5) Confirmation of coverage of x, c, and u.

(c) Policy Endorsements: Copies of the Contractor's automatic policy endorsements or original policy endorsements acceptable to the Owner shall be filed with the Owner prior to the Owner's execution of the Contract. All policy endorsements shall endorse

the Owner, its officers, agents, employees, consultants and Municipal Consultants, Inc. and these parties/organizations shall be listed as such in the Endorsement Schedule included on the endorsements. The policy number shall be listed in all Schedules. Policy endorsements for additional insureds and waivers of subrogation shall be for both On-going and Completed Operations as defined above. Automatic and/or original endorsements for additional insureds and waivers of subrogation for ALL policies (i.e. General Liability, Automobile Liability, All Risk (Builder's risk), Umbrella Insurance, Workman's Compensation, etc.) shall be as broad as (i.e. similarly worded to) the following General Liability endorsements and be acceptable to the Owner:

- (1) Additional Insured Endorsements - ISO's CG 20 10 11/85 or the combination of CG 20 10 10/01 and CG 20 37 10/01.
- (2) Waivers of Subrogation Endorsements - ISO's CG 24 04 10 93 or CG 24 04 05 09.

(d) Liability Insurance: The Contractor shall procure and maintain at the Contractor's expense, during the work, liability insurance as hereinafter specified:

- (1) Contractor's General Public Liability and Property Damage Insurance including vehicle coverage issued to the Contractor and protecting the Contractor from all claims for personal injury, including death, and all claims for destruction of or damage to property, arising in connection with any operations under the Contract Documents, whether such operations be by the Contractor or by any Subcontractor employed by the Contractor. Insurance shall be written with a limit of liability of not less than \$1,000,000 for all damages arising out of bodily injury, including death, at any time resulting therefrom, sustained by any one person in any one accident, and a limit of liability of not less than \$2,000,000 aggregate for any such damages sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability of not less than \$1,000,000 for all property damage sustained by any one person in any one accident and a limit of liability of not less than \$2,000,000 aggregate for property damage sustained by two or more persons in any one accident. The insurance shall provide full coverage for x, c, and u.
- (2) The Contractor shall acquire and maintain, if applicable, Fire and Extended Coverage Insurance upon the Project to the full insurable value thereof for the benefit of the Owner, the Contractor, and Subcontractors as their interest may appear. This provision shall in no way release the Contractor or Contractor's surety from obligations under the Contract Documents to fully complete the Project.

(e) Worker's Compensation Insurance: The Contractor shall procure and maintain, at the Contractor's own expense, during the Contract Time, in accordance with the provisions of the laws of the state in which the Work is performed, Workman's Compensation Insurance,

including occupational disease provisions, for all of the Contractor's employees at the site of the Project and in case any Work is sublet, the Contractor shall require such Subcontractor similarly to provide Workmen's Compensation Insurance, including occupational disease provisions for all of the latter's employees unless such employees are covered by the protection afforded by the Contractor. In case any class of employees engaged in hazardous work under this Contract at the site of the project is not protected under Workmen's Compensation statute, the Contractor shall provide, and shall cause each Subcontractor to provide, adequate and suitable Insurance for the protection of its employees not otherwise protected.

(f) "All Risk" Insurance: The Contractor shall secure, if applicable, "All Risk" type Builder's Risk Insurance for Work to be performed. Unless specifically authorized by the Owner, the amount of such insurance shall not be less than 100% of the insurable value. The policy shall cover not less than the losses due to fire, explosion, hail, lightning, vandalism, earthquake, malicious mischief, wind, collapse, riot, aircraft, water damage (other than caused by flood) and smoke during the Contract Time, and until the Work is accepted by the Owner and final payment has been made. The "All Risk" policy shall include testing and start-up and allow for utilization of the Work by the Owner. The policy shall name as additional insured the Owner, its officers, agents, employees, consultants, and Engineer (Municipal Consultants, Inc.). Flood insurance and all Additional Insured and Waiver of Subrogation Endorsements must be carried in "All Risk Policy" or by separate policy.

(g) Consistent with the requirement for all insurance coverages provided by the Contractor, the Contractor shall notify the Owner and Engineer in writing 30 days prior to the expiration of the Contractor's Builder's Risk Insurance and Flood Insurance. The Contractor shall maintain the specified Builder's Risk Insurance and Flood Insurance continuously for the duration of the project and until the Work has been accepted by the Owner. In no case, shall the Contractor anticipate acceptance by the Owner when planning for discontinuance of the required Builder's Risk Insurance or Flood Insurance.

(h) Umbrella Excess Liability Over Primary Insurance: The Contractor shall take out and maintain during the term of this Contract, and any extensions thereof, Umbrella Excess Liability Insurance. The minimum limits of coverage shall be \$5,000,000 aggregate. The coverage shall be over the required general liability insurance and automobile liability insurance as a minimum. There shall be no gaps or sublimit deductibles, etc. The Owner, its officers, agents, employees, consultants, and Engineer (Municipal Consultants, Inc.) shall be named as additional insureds in all umbrella policies.

(i) Protection of the Owner and Engineers: The Owner, its officers, agents, employees, consultants, and Engineer (Municipal Consultants, Inc.) shall be named as additional insureds in all insurance policies carried by the Contractor or that of his subcontractors for this Contract. If the Contractor or his Surety cannot name the Owner, its officers, agents, employees, consultants, and Engineer (Municipal Consultants, Inc.) as additional insureds in any policies providing the coverage above, the Contractor shall purchase and maintain Owner's Protective Liability Insurance (OCP Policy) in the amount of not less than \$5,000,000 and the named insured shall be the Owner, its officers, agents, employees, consultants, and Engineer (Municipal Consultants, Inc.) during the life of this agreement. The coverage shall remain in full effect for both On-going Operations and Completed Operations as described above in Section VII.7(a). The insurance shall protect the Owner, its officers,

agents, employees, consultants, and Engineer (Municipal Consultants, Inc.) from any claim or loss arising from any act or failure to act on the part of the Contractor or his Subcontractors. All insurance shall be primary without contribution from any insurance or deductibles available to the additional insureds and OCP policy holders.

(j) Miscellaneous Insurance: Provide all insurance required by railroads, other utilities, etc. Provide, on the behalf of the Owner, all such insurance required of the Owner by railroad, other utilities, etc.

(k) Neither the setting of insurance limits or requirements nor the acceptance or approval of the same by the Owner imply or represent that the limits or the insurance carrier is sufficient or that such insurance actually has been obtained, that being the responsibility of the Contractor. These insurance requirements shall be considered as a minimum. The Contractor shall consult with his insurance agent to determine whatever greater levels of insurance may be desired. The provision of insurance shall in no way limit the Contractor's responsibility under the Contract nor limit his responsibility to indemnify and hold harmless the Owner and Engineer.

(l) See the Special Provisions for additional insurance requirements.

VII.8 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTY AND SERVICES

The Contractor shall fully cooperate with private and public utilities in accordance with Section V.7. Where the Contractor's operations are adjacent to properties or utilities, work shall not be started until arrangements for their protection have been made. The Contractor shall be solely responsible to the Owners and Operators of properties or utilities for injuries or damages. If required by the Owner, he shall furnish special Protective Public Liability and Property Damage Insurance in an amount specified. The Contractor shall co-operate with the owners of utilities if any of their facilities are removed or rearranged. The Contractor shall be responsible for costs associated with this item.

In the event of interruption to utility services or potential damage to the utility caused by the Contractor, the Contractor shall promptly notify the proper authority. He shall cooperate in the restoration of service promptly. The Contractor shall be responsible for all costs associated with this item.

VII.9 PERSONAL LIABILITY

There shall be no liability upon the Owner or Engineers, or their authorized representatives, or employees, either personally or as officials of the Owner or engineering company.

VII.10 NO WAIVER OF LEGAL RIGHTS

The Owner or the Engineer shall not be precluded from showing the true and correct amount and character of the Work performed and materials furnished by the Contractor by any measurement, estimate, or certificate incorrectly made during the course of the Work. The Engineer shall have the right to reject any part of the Work or materials should it be found to be inconsistent with the Contract. The Owner shall not be precluded from recovering from the Contractor and his surety damages for the Contractor's failure to comply with the terms of

the Contract. Neither the inspection by the Owner or the Engineer or any of their officers, employees, agents, or subconsultants, nor any order by the Owner for payment of money, nor any payment for, or acceptance of, the whole or any part of the Project by the Owner or Engineer, nor any extension of time or change order, nor any possession taken by the Owner or its employees, shall operate as a waiver of any provision of this Contract, or any power herein reserved to the Owner, or any right to damages, nor shall any waiver of any breach in this Contract be held to be waiver of any other or subsequent breach. Acceptance or final payment shall not be final and conclusive with regards to rejected Work at any time before or during the warranty period; to latent defects; fraud or such gross mistakes as may amount to fraud; or as regards to the Owner's rights under any warranty.

VII.11 SAFETY AND CONSTRUCTION METHODS

The Contractor at his own expense, shall maintain project and public safety. The Contractor agrees to hold the Owner and Engineers harmless and indemnify them from all claims for damages resulting from construction of the project by the Contractor or Subcontractors, his agents or employees. The Owner and/or Engineers are not responsible for providing the Contractor a safe place to work nor for the safety of any equipment, procedure or material used on construction or incorporated into the work. The Contractor shall be solely responsible for the means and methods of construction and for safety.

The Contract or Owner may sometimes impose limitations or other requirements on the Contractor's sequence of construction. Such limitations or requirements do not constitute control of the Contractor's means or methods, nor relieve the Contractor's responsibility for safety.

When the use of explosives is necessary, the Contractor shall use care to prevent damages to life or property and shall comply with all rules and regulations of the governing authorities. Notwithstanding any other provisions contained in these Contract Documents, and notwithstanding whether any claim alleges negligence, intention or willful injury, absolute liability or any other theory of recovery, Contractor and his surety shall indemnify and hold harmless Owner, its directors, agents and employees, engineer, engineer's consultants, agents and employees, or any of them from and against all claims, damages, losses and expenses, including, but not limited to, attorney's fees, arising out of or resulting from blasting activities, the use, transportation, or storage of explosives generally or any other dangerous material or ultra-hazardous activity. If no local laws or ordinances apply, storage of explosives shall not be closer than 1,000 feet from the road, street, any building or area of public use. Fuel tanks, systems and appurtenances shall be stored and utilized in a way to comply with OSHA and regulatory agencies.

The Contractor, in the prosecution of his work under the Contract, is bound by the requirements of "Safety and Health Regulations for Construction" of the Occupational Safety and Health Administration, U. S. Government Department of Labor, and of other authorities having jurisdiction in safety matters.

Under the terms and conditions of this Contract, the Engineer shall not act as Safety Engineer or Safety Supervisor, since such responsibility remains solely with the Contractor. The Engineer shall not be responsible for establishing safety practices or for prescribing safety measures for the Contractor and his methods of construction.

The Contractor is solely and completely responsible for conditions of the job site, including safety of all persons and property affected directly or indirectly by his operations during the performance of the work; and this requirement is not limited in application to normal working hours, but applies continuously twenty-four (24) hours per day until acceptance of the work by the Owner, and thereafter shall be subject to the terms and conditions of the Guaranty.

The duty of the Engineer is to review the work in order to determine its acceptability in accordance with the Specifications and to conduct construction review of the Contractor's performance for the benefit of the Owner. This shall not be construed as a duty to review the adequacy of the Contractor's safety measures or construction methods on or near the construction site and/or to direct the actions of the Contractor's employees in the performance of the work as such duties are not included among the responsibilities of the Engineer.

VII.12 SANITARY PROVISIONS

The Contractor is responsible for the maintenance of proper sanitary conditions in the area of his work. The provision and maintenance of such sanitary accommodations as may be required for the use of his employees and of his subcontractor's employees is subject to the Rules and Regulations of the State Board of Health and to all local Codes and Ordinances.

VII.13 EXISTING CONSTRUCTION AND FACILITIES

Where construction work under this Contract is adjacent to or crosses highways, railroads, streets, roads, access facilities, or utilities under the jurisdiction of State, County, City or other public agency, public utility or private entity, the Contractor is required to furnish such bond (cash or surety as required), insurance agreement or satisfy any other permit conditions as may be required before executing such construction work. A copy of the bond or insurance agreement (when required) must be filed with the Owner before any work is done. The Contractor is responsible for his means and methods of construction to satisfy the permitting authority and to obtain the desired result as shown within the Contract Documents.

Although the Owner will procure general permits such as those required by highway departments or other utilities to allow the proposed facilities to be installed on public rights of way or privately owned rights of way, it is the responsibility of the Contractor to obtain special or supplemental permits for his means and methods of construction such as blasting permits. However, if and only if the rules and regulations of the agency having jurisdiction over the work will not allow the Contractor or his blasting subcontractor to obtain a blasting permit (but instead require the Owner to obtain the blasting permit as a formality), then the Owner will not withhold from assisting the Contractor with submitting a reasonable blasting permit application (in the Owner's name) provided that the following minimum requirements are understood/met to the full satisfaction of the Owner:

- (1) The Owner nor the Engineer in no way suggests or implies that a blasting permit can be obtained for the entire project or any part of the project in the Contractor's name or the Owner's name. The Contractor shall have reviewed the project in its entirety and satisfied himself during bid time that his proposed

means and methods (i.e. blasting) are reasonable and acceptable to the agency having jurisdiction over the work.

- (2) The Contractor shall provide written documentation from the agency having jurisdiction over the work stating that the blasting permit cannot be obtained in the Contractor's (or his subcontractor's) name, but instead must be obtained in the Owner's name as a formality.
- (3) The request for a blasting permit shall be considered reasonable to the Owner in all respects.
- (4) The Contractor, on behalf of the Owner, shall comply with and adhere to all stipulations set forth in the blasting permit agreement and any other requirements set forth by the permitting agency.
- (5) Notwithstanding any other provisions contained in these Contract Documents, and notwithstanding whether any claim alleges negligence, intention or willful injury, absolute liability or any other theory of recovery, Contractor shall indemnify and hold harmless Owner, its directors, agents and employees, engineer, engineer's consultants, agents and employees, or any of them from and against all claims, damages, losses and expenses, including, but not limited to, attorney's fees, arising out of or resulting from blasting activities, the use, transportation, or storage of explosives generally or any other dangerous material or ultra-hazardous activity.
- (6) The Contractor shall be fully responsible for preparing and providing all permit applications, all necessary documentation, maps, sketches, additional insurance, bonds, indemnifications, etc. as may be required by the permitting agency and/or Owner to obtain the blasting permit. If required by the Owner, the Contractor shall furnish special Protective Public Liability and Property Damage Insurance in an amount specified.
- (7) The Contractor shall be fully responsible for all costs resulting from special or supplemental permits for his means and methods of construction such as blasting permits.
- (8) The Contractor shall execute any supplemental agreements or amendments to the Contract Documents that may be required to fully satisfy the Owner regarding the Contractor's complete responsibility and overall liability for the blasting operations.
- (9) The Contractor shall perform pre-blast surveys, seismograph testing, and any other activity required to ensure no damage to surrounding property. When

required by the Owner, the Contractor shall submit a complete blasting plan sealed by a professional engineer in the state where the work is to be performed.

- (10) The Contractor shall only employ experienced blasting professionals to perform the pre-blast surveys, seismograph testing, blasting plans, and all other activities associated with the blasting operations. The Contractor shall provide the resumes of the companies and individuals actually performing the pre-blasting and blasting activities when requested by the Owner.
- (11) The Contractor shall be fully responsible for the replacement and/or repair of all existing construction, utilities, or facilities damaged in the execution of work under this Contract.
- (12) The Contractor shall furnish releases from all authorities affected by the work before final acceptance of the work under this Contract.
- (13) The coordination, timing, and the overall schedule of the permitting process shall be the full responsibility of the Contractor to ensure all work is completed within the allotted Contract Time set forth in the Special Provisions. Any permitting activities requiring the Owner's participation shall be coordinated well in advance by the Contractor and sufficient time shall be allotted for such activities.

SECTION VIII PROSECUTION AND PROGRESS

VIII.1 SUBLETTING OR ASSIGNING OF CONTRACT

The Contractor shall perform the Contract under his direction and responsibility. A Subcontractor shall be recognized only as an employee or agent of the Contractor and his removal may be required by the Owner.

VIII.2 PROSECUTION OF WORK

The Contractor shall begin the Work under the Contract within ten (10) calendar days after issuance of the Notice to Proceed. He shall give the Engineers notice to start work at least seventy-two (72) hours before beginning work. The Contractor shall notify the Engineers twenty-four (24) hours before he expects to undertake particular construction or testing.

Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work. The Contractor shall employ an ample force and provide adequate construction equipment to insure its completion within the Contract time. The Contractor shall properly plan, coordinate, and schedule all work to insure completion within the Contract Time.

All work shall receive the personal attention of the Contractor or of a competent superintendent who shall have authority to act for him. The Contractor shall notify the Engineers of the person authorized to act as superintendent. The Contractor shall have his superintendent on site at all times when work is being performed. The superintendent shall be a full time employee of the general contractor and not of a subcontractor. Any employee of the Contractor or Subcontractor found by the Owner to be incompetent, shall be dismissed from the work.

The Contractor shall utilize the same suppliers, equipment manufacturers, and subcontractors as he listed in the bidding documents that he submitted with his bid. The Contractor shall be fully responsible for all work and safety practices of all his subcontractors.

To coordinate work to be accomplished with affected entities, a progress meeting will be held periodically at the project site. The progress meeting will be held on Fridays and will be attended by the Engineer's inspector, Owner's representative, Contractor's superintendent, Contractor's project manager from his home office, affected subcontractor(s), and other parties who may be invited. The Owner reserves the right to establish the time of the meeting, change frequency of meetings, change meeting days, or to cancel the meeting.

Prior to starting up any equipment, the Contractor shall insure that all tanks, piping, and equipment, etc., are thoroughly cleaned of any debris or substances that may cause damage. The Contractor shall be fully responsible for all startups. He shall insure that all operations are in accordance with the manufacturer's recommendations. If certain equipment is not to be operated or is to operate only under special procedures, the Contractor shall be fully responsible for insuring that such procedures are carefully followed. The Contractor shall lock out (with his own locks) and tag out breakers, controls, equipment, valves, and gates, etc., where needed to prevent unintended operation by others. The Contractor shall clearly communicate any special operating instructions to the Owner and Engineer in writing.

Color Selection Conference: Prior to the selection by the Owner of any colors (including but not limited to colors of paint, block, brick, mortar, louvers, soffit, gutters, roofing, doors, windows, furniture, counters, cabinets, molding, lighting, and all other materials or equipment to be provided by the Contractor), the Contractor shall furnish triplicate samples of all colors to be selected. After review of the colors by the Owner and Engineer, a conference shall be held to be attended by the Contractor, Owner, and Engineer for the Owner to make his selections. One of the samples shall be retained by the Owner, one by the Engineer, and the third by the Contractor.

The Contractor shall cooperate with the Engineer and keep him informed regarding all planned short-term and long-term activities. This includes but is not limited to all startup and testing, etc., issues. The Contractor shall notify the Engineer in advance of all such activities so that the Engineer may observe these if he desires. The Contractor shall provide the Engineer with copies of all manufacturer startup and testing reports, etc.

If changes are made on the project to accommodate the Contractor's requests, the Contractor shall be solely responsible for all associated changes, including but not limited to electrical, control, instrumentation, and SCADA changes. He shall make all such changes at his own expense to maintain the same functionality, flexibility, expandability, and redundancy etc. as provided by the original design. There shall be no extra time awarded due to agreeing to the Contractor's request.

Provide copies of all manufacturer or manufacturer representative, etc. site visit reports, startup reports, test reports, and all other manufacturer or installer reports (including but not limited to troubleshooting or service reports) to the Engineer promptly after the action occurs. If problems occur after startup or during the warranty period, and a service visit or repair, etc., is needed, the Contractor shall promptly provide to both the Engineer and Owner a written report from the service provider describing the problem and the corrective actions taken.

The Contractor shall provide temporary power and temporary utilities as needed to construct the project. All power costs and utility costs, including those for testing, shall be the responsibility of the Contractor until the Owner accepts the project or, at the Owner's discretion, begins beneficial use of the project. Regardless, the Contractor shall be responsible for extra utility costs incurred by or billed to the Owner due to the Contractor's activities or non-compliance with the Contract, or late completion.

It shall be the responsibility solely of the Contractor to properly prosecute all works in a safe manner that fully and continuously protects all people at the site(s) as well as the public. Neither the Owner or the Engineer are responsible for safety. Only the Contractor has the authority to control his work and to implement safe work practices.

VIII.3 TEMPORARY SUSPENSION OF WORK

The Owner shall have the authority to suspend the Work or parts for periods due to unsuitable weather or conditions which he considers unfavorable for satisfactory prosecution of Work, or for failure of the Contractor to perform any provisions of the Contract. No additional compensation shall be paid the Contractor for suspension. Upon suspension, the Work shall be properly protected. The Contractor shall not suspend the Work without the approval of the Owner. The Engineer will be notified twenty-four (24) hours before work is to be resumed.

Should the Work be stopped by an injunction, court restraining order, process or judgment directed to either of the parties hereto, then such delay shall not be charged against the Contract time. The Owner will not be liable to the Contractor for such delay or termination of the Work. If it should become necessary to stop work, the Contractor shall properly store materials and equipment, and properly protect the Work.

VIII.4 USE OF COMPLETED PORTIONS OF THE WORK

The Owner shall have the right to take possession of and use any completed or partially completed portion of the work, notwithstanding that the time for completing the entire work or such portions of the work may not have expired; but such taking possession and use shall not be deemed to be acceptance or substantial completion of any work not completed in accordance with the Plans, Specifications, and Contract Documents.

VIII.5 SATURDAY, SUNDAY, HOLIDAY, AND NIGHT WORK

Work on Saturdays, Sundays, Holidays, or at night may be required when special connections to existing systems are to be made, when new facilities are to be placed in service, when existing facilities are to be taken out of service, when it is more advantageous to the utilities involved, or when an emergency arises in the work schedule. In such cases the

Owner must be notified prior to beginning work. The work should be scheduled well in advance and arrangements made for prosecution of the work with minimum inconvenience to the public. All work required on Saturdays, Sundays, Holidays, or at night shall be so performed without additional expense to the Owner. Maintenance work normally required for protection of persons, or for protection of the work or property, will be permitted at any time. No equipment or system where controls or any other complicated processes are involved shall be placed in service on Friday, Saturday, Sunday, observed Holidays, or any day before observed Holidays without the consent of the Owner.

VIII.6 CONSTRUCTION SCHEDULE

The Contractor is instructed to submit to the Engineer, prior to initiating the work but not later than ten (10) days after the execution of the Contract, a schedule of construction operations so planned as to ensure completion of the work within the time limit specified in the Proposal and in the Contract Agreement. The maintenance of such schedule in order to fulfill the terms of the Contract Agreement is the responsibility of the Contractor, and he may employ such reasonable and proper measures, subject to other conditions of these Documents, as he deems to be required to expedite the work and to ensure that it will be fully and satisfactorily completed within the stated time limit. The Contractor shall not be allowed additional compensation for employment of such measures.

The Contractor shall show in the schedule the proposed dates of commencement, completion, and cost (if cost was not delineated in Basis of Payment) of the various subdivisions of work comprising the project, and also shall show in the schedule the estimated amount of each monthly payment (periodic estimate) that will become due to the Contractor as he maintains the progress schedule prepared by him.

VIII.7 AVOIDANCE OF POLLUTION CONTRIBUTION DURING CONSTRUCTION OPERATIONS

The employment of all safeguards and all precautions necessary to minimize contributions of pollution to water courses during the construction operations is the responsibility of the Contractor. The proper performance of excavating and backfilling operations, the interception and diversion of surface drainage around excavated areas or areas having the soil cover disturbed, the construction of temporary terraces or dikes, and the use of silt fences or other silt retaining means will be necessary to prevent concentration of run-off over freshly excavated or backfilled areas and to minimize stream pollution resulting from soil transported in run-off from the construction site. At the conclusion of the work, and after all temporary facilities have been removed, all areas disturbed by construction operations shall be restored to as good a condition as when found, or to condition as may be specified for the particular area. The Contractor shall comply with all ADEM and EPA laws, regulations, guidelines, and permits, etc.

VIII.8 USE OF CHEMICALS

All chemicals used during construction of the project or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reagent, or of other classification, must show approval of EPA, USDA, or FDA, according to the purposes for

which the particular chemical is to be used. Application of all such chemicals and disposal of residues therefrom are dependent upon the instructions and recommendations of the manufacturer's of the respective chemicals.

VIII.9 COMPLETION DATE AND LIQUIDATED DAMAGES

The Owner will issue a Notice to Proceed to the Contractor. The Notice to Proceed will state the date upon which work shall start, and the Contractor will then be allowed the number of calendar days shown in the Special Provisions to totally complete all work. Liquidated Damages shall be as indicated in Special Provisions.

The Contractor shall proceed expeditiously with adequate forces and shall achieve final acceptance of all Work within the Contract Time. If the Contractor is unavoidably and directly delayed in progress of the Work by unpredictable circumstances created by a separate contractor employed by the Owner; by changes ordered in the Work; by unavoidable casualties; or by delay authorized by the Owner, then the Contract Time may be extended by Change Order for such reasonable time as the Owner may determine. The Contractor shall not be entitled to any reparation or compensation on account of such additional time or extension of time. Change to specific work element may only constitute an increase time for that work element and may not necessarily increase the time for the entire project. Time extension will be allowed only if the justifiable delay directly affects the Contractor's schedule for the entire project. In such case, the time extension shall be only for the direct extra time required due to the change itself. No extra time shall be allowed for the Contractor's failure to address the change and perform the extra work in the most expeditious manner possible. In all cases, the Contractor shall properly plan and fully perform his work in a manner to minimize any extra time required. If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time and could not have been reasonably anticipated and that weather conditions had an adverse effect on the scheduled construction. (See Special Provisions).

VIII.10 DEFAULT OF CONTRACT

If the Contractor fails to begin the Work within the time provided, or to perform the Work to insure its completion in the time allowed or performs the Work unsuitably, or neglects or refuses to remove materials or perform anew such work as shall be rejected as defective and unsuitable, or if it should persistently or repeatedly refuse or fail to supply enough properly skilled workmen or if it should refuse or fail to make prompt payment to persons supplying labor or materials for the Project under the Contract, or persistently disregard instructions of the Engineer or Owner or fail to observe or perform any provisions of the Contract Documents, or fail or otherwise be guilty of a substantial violation of any provision of the Contract Documents, or discontinues the prosecution of the Work for any other cause whatsoever, or does not carry on the Work for any other cause whatsoever, or does not carry on the Work in an acceptable manner, or becomes insolvent or is adjudicated a bankrupt, or commits any act of bankruptcy or insolvency, or allows any final judgment to stand against him unsatisfied for a period of ten (10) days, the Owner may give notice by registered mail to the Contractor and Surety, of such default. If within ten (10) days after

notice the Contractor does not remedy or the Surety does not take over the work, the Owner shall have authority, without impairing the obligation of the Contract Bonds, to take over the completion of the Work. If the Contractor or Surety does not substantially begin Work and remedy the default after the ten (10) day period, the Owner shall not be obligated to make further payment to the Contractor, including any amounts which may be due for previously performed Work, if he was diligently pursuing the Work. The Contractor and his Surety shall be liable for all costs incurred by the Owner including but by no means limited to construction, administration, legal, and engineering, in completing the Work and all liquidated damages. In case the expense incurred by the Owner is less than the sum payable under the Contract, the Contractor or his Surety shall be entitled to receive the difference. In case the expense exceeds the sum payable under the Contract, the Contractor and his Surety shall be liable to the Owner in the amount of the excess. The surety shall assume all warranties required by the Contract Documents whether work is performed by defaulting contractor or contractors which complete the project.

VIII.11 OWNER MAY TERMINATE FOR CONVENIENCE

Upon seven days written notice to CONTRACTOR and ENGINEER, OWNER may, without cause and without prejudice to any other right or remedy of OWNER, elect to terminate the Contract. In such case, CONTRACTOR shall be paid (without duplication of any items):

- 1) for completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
- 2) for expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
- 3) for all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
- 4) for reasonable expenses directly attributable to termination.

CONTRACTOR shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

VIII.12 PAYMENTS ON ACCOUNT/PAYMENTS WITHHELD/RETAINAGE

Provide a complete and detailed schedule of values to the Engineer in a timely manner prior to the 1st payment request. The schedule of values shall be patterned after the bid items in the Contract but much more detailed. This schedule shall be in a format with breakdowns and amounts, etc., acceptable to the Owner. The schedule of values shall be revised until it is satisfactory to the Owner. The Owner shall not be required to make or continue payments until the Schedule of Values is acceptable to the Owner. The submittal of this schedule of values by the Contractor shall act as a certification by the Contractor that the

values reflect the total cost such that the cost associated with unperformed work items is sufficient to fully complete the work. Provide an explanation with the schedule of values explaining what work is included in each item. The schedule of values and pay request shall be revised whenever it appears that the monies remaining to be paid may not be sufficient to cover the entire cost (including overhead and profit, etc.) of the remaining work. This may result in deduction being made from items previously paid for.

Upon presentation of a verified application for payment, as the Work progresses, the Owner shall make partial payments (generally monthly) to the Contractor for the billable work performed less payments already made and less deductions for any incomplete, unacceptable, or defective work. The Contractor shall include neatly organized backup data and detailed calculations fully supporting all the items in his pay request. All such information shall be arranged in a manner required by the Engineer. The required format may vary as the project progresses. Also include totals and percentages for both total work performed to date and work remaining after the current pay request. On relocation projects reimbursable by the Alabama Department of Transportation, application for payment will be submitted by the Owner to the Alabama Department of Transportation. When reimbursement funds are received by the Owner from the State, payment will be made to the Contractor. In making partial payments to the Contractor, there shall be retained five (5%) percent of the estimated amount of work done and value of materials suitably stored on the site or suitably stored and insured offsite (offsite storage must be approved). Provided, however, after fifty (50%) percent of the project has been satisfactorily completed, no further retainage will be withheld. The calculation of percent completed shall be based on the value of work actually in place and agreed upon by the Engineer. The value of stored materials shall not be considered in the calculation of percent completed. Submittals must be approved and all comments addressed to the satisfaction of the Engineer before any payment is made on the items the submittal addresses.

The Contractor will be paid only for items listed in the "Items of Work". The Contractor shall include the cost of any and all work required, but not specifically listed, in the cost of the items listed. The Contractor shall include in the Contract Sum all allowances stated in the Contractor Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, or the Contractor chooses. Unless otherwise provided in the Contract Documents, allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts. The Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum and not in the allowances. Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order.

The Contractor's submittal of an Application for Payment (that is, a request for payment) shall be a certification by the Contractor that he is familiar with the work performed, has inspected the work performed, certifies that all work billed for on the current and previous applications has been completed in accordance with all the requirements of the Contract, and certifies that the status of completion indicated is accurate and that the amounts requested for payment are accurate. The Application for Payment shall be the Contractor's certification (1)

that all work billed for has been properly completed to the percentage or amount shown, and (2) that all work billed for complies fully with all requirements of the plans and specifications.

The Contractor further warrants that upon submittal of an Application for Payment, all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work. Such applications shall not include requests for payment of amounts the Contractor does not intend to pay or has not paid, where applicable to a Subcontractor or material supplier because of a dispute or for any other reason. When requested, the Contractor shall promptly provide the Engineer proof of payments made. The proof shall be a certified statement from the subcontractor or material supplier showing the invoice amounts and the amount actually received for the project. Retainage or other amounts to be paid later shall not be included in the amounts paid. The proof of payment shall be clearly stated and acceptable to the Engineer.

The issuance of a Certificate for Payment will constitute a representation by the Engineer to the Owner, based on the Engineer's observations at the site and the data comprising the Application for Payment, that the Work has progressed to the point indicated and that, to the best of the Engineer's knowledge, information and belief, quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon completion; to results of subsequent tests and inspections; to minor deviations from the Contract Documents correctable prior to completion; and to specific qualifications expressed by the Engineer. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Engineer has (1) made exhaustive or continuous inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

The Engineer may decide not to certify payment and may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Engineer's opinion the representations to the Owner required above cannot be made. If the Engineer is unable to certify payment in the amount of the Application, the Engineer will notify the Contractor and Owner. If the Contractor and Engineer cannot agree on a revised amount, the Engineer will issue a Certificate for Payment for the amount for which the Engineer is able to make such representations to the Owner. If the Contractor feels that he is entitled to be paid more, he shall promptly provide to the Engineer detailed and complete documentation demonstrating that he has earned the amounts he requested and that sufficient monies remain to be paid to fully complete all the requirements of the plans and specifications.

Retainage may be held by the Owner until final completion and acceptance of all work covered by the Contract Documents. No other escrow or deposit arrangements are

acceptable to the Owner. When maintenance periods are included in the Contract Documents, such period shall be considered a component part of the Contract and retainage will be held until the expiration of such periods.

Unless specified otherwise in the Basis of Payment, separate structures or buildings, public work, or other separately identifiable divisions of the Contract in regard to which a separate price has been stated in the Contract Documents or can be separately ascertained, are integral parts of the complete project, and the Owner will not release retainage or make payment in full or separate divisions even though that part of the project may be complete, accepted, and in full service until the entire project and all components thereof have been completed, tested, accepted, and are in satisfactory service.

All materials and work covered by partial payments as provided for herein shall become the sole property of the Owner; provided, however, the Contractor shall not be relieved from the sole responsibility for the care and protection of materials, equipment, and work upon which payments have been made and for the restoration of any damaged work.

When work has been determined to be unacceptable, the Owner may at any time deduct the full cost, as estimated by the Engineer, of removing the unacceptable work and replacing it with work fully meeting the requirements of the Contract. The Owner may at any time refuse to pay for any work that will be affected by the removal and replacement of unacceptable work. The Owner shall not be required to pay for, or may at any time, deduct the full cost of removal and replacement, of all affected work that is dependent on or supported by or connected to, etc., unacceptable work or work not demonstrated to be in full compliance with all Contract requirements.

When requested, the Contractor shall promptly provide full support and detailed documentation clearly showing (1) that the amounts previously paid and currently being requested are justified, and (2) that sufficient monies remain for fully completing all work items of concern. There shall be no obligation for the Engineer to approve a payment amount requested if the Contractor does not acceptably demonstrate that the item (including any associated remedial work) can be totally completed per all Contract requirements for the amount remaining. In addition to retainage, additional amounts will be withheld for start-up, testing, cleanup, grassing, price adjustments, etc., and any and all other required work until all such work is totally complete in all respects. The Contractor shall not receive full payment for a work item until it is totally complete in all respects. Payment for an item shall not preclude later withholding for that item if it is determined that the payment should not have been made or if a problem develops with the work previously paid for. In addition, the Owner may also withhold payment of the whole or any part of a verified or approved application for payment from the Contractor to such an extent as may be necessary to protect itself from loss on account of any of the following causes discovered subsequent to its verification or approvals:

- 1) Defective work.
- 2) Evidence indicating probable filing of claims by other parties against the Contractor.
- 3) Failure of the Contractor or subcontractor to promptly make payments to subcontractors or for materials, labor, food stuffs and supplies.
- 4) Damage to another contractor under separate contract with the Owner.

- 5) Assessment of liquidated damages or fines, fees, etc.
- 6) Overestimated quantities or percent completion from previous estimates.
- 7) Reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum.
- 8) Reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay.
- 9) Persistent failure to carry out the Work in accordance with the Contract Documents.

When the above grounds are removed, applications for payment will then be verified and/or approved for amounts not previously verified and approved because of them.

VIII.13 NO DAMAGE FOR DELAY

If the Contractor is delayed, hindered, or impeded at any time in the progress of the Work for any reason or by any alleged act or neglect of the Owner, or the Engineer, or by an employee of any of them or by a separate vendor, manufacturer or Contractor employed by the Owner, or by changes ordered in the scope of the Work, or by other causes beyond the Contractor's control, then the Contract Time may be extended at the sole discretion of the Owner by Change Order for such reasonable time as is agreed to by the Owner. However, notwithstanding any other provisions in the Contract Documents, and whether contemplated or not, and whether or not arising by active interference; the Owner, Engineer, and their respective agents and employees shall not be liable for any damages for delay whether for direct or indirect costs, extended home office overhead, idle or inefficient labor or equipment, cost escalations, or monetary claims of any nature arising from or attributable to delay by any cause whatsoever. The Contractor's sole and exclusive right and remedy for delay by any cause whatsoever is an extension of the Contract Time but no increase in the Contract Sum.

SECTION IX PROJECT COMPLETION

IX.1 SUBSTANTIAL COMPLETION

"Substantial completion" shall be that degree of completion of the entire Project, unless otherwise provided for, as evidenced by the Engineer's written notice of substantial completion, sufficient to provide the Owner, at its discretion, the full-time use of the work or defined portion of the work for the purposes for which it was intended. "Substantial completion" of a Project shall be that degree of completion that has provided a minimum of 7 continuous days of successful, trouble-free operation of the entire project facilities in a "fully automatic" manner acceptable to the Owner and Engineer and with all redundant and alternative systems fully operational. The Contractor shall demonstrate that all features of the project function properly and reliably in the intended mode during this seven-day period in order for the project to be considered eligible for substantial completion. All alternative modes of operation and flexibility must be demonstrated during this period. All equipment contained in the Project, plus all other components required in the Plans and

Contract Documents to enable the Owner to operate the project facilities in the manner that was intended, shall be complete on the substantial completion date. The Project herein described is a complete Project in its entirety and shall include clean-up and other aesthetically pleasing requirements of the project. Completion of individual components of the Project cannot be considered for substantial completion until the sum total of these components are complete and thus, the components when operating properly will provide the Owner with a complete Project.

When the Contractor considers that the Project is substantially complete, the Contractor shall carefully review all requirements of the plans and specifications, carefully compare the work completed to the work required, and prepare and submit to the Engineer a detailed, complete list of all items to be completed or corrected and request an inspection for substantial completion. The Contractor shall not misrepresent the work as substantially complete when a limited investigation indicates that the work is not substantially complete. The failure by the Contractor to include any items on such list does not alter the responsibility of the Contractor to complete all work in accordance with the Contract Documents. After inspection and/or if an operating facility, after a minimum of seven continuous days of successful, trouble-free operation has been achieved during startup, the Engineer may, at his sole discretion, issue a written notice of substantial completion for the purpose of establishing the starting date for specific equipment guarantees or warranties, and to establish the date the Owner will assume the responsibility for the cost of operating such equipment.

Said notice shall not be considered as final acceptance of any portion of the Project or relieve the Contractor from completing the remaining work, including any remaining performance or acceptance testing, within the specified time and in full compliance with the Contract Documents. Specifically, the issuance of a written notice of substantial completion shall not relieve the Contractor of his obligation to promptly remedy any omissions and latent or unnoticed defects in the Project covered by the written notice of substantial completion.

IX.2 FINAL INSPECTION

After the Contractor properly completes all work on his detailed list of items to be completed or corrected, he shall again carefully review all requirements of the plans and specifications and carefully compare the work completed to the work required by the plans and specifications. He shall complete any work not completed in accordance with the plans and specifications, as well as any other required work that may be brought to his attention by others. When all work is complete, the Contractor shall notify the Engineer and Owner that his work is complete. The Contractor shall not misrepresent the work as complete when a limited investigation indicates that the work is not complete.

Upon notice from the Contractor that its work is complete, the Engineer and/or other representatives of the Owner shall make a final inspection of the Work or Project and conduct test or tests, if applicable. The Engineer shall notify the Contractor of all apparent and/or visible instances where the Project fails to comply with the Plans and Specifications and Contract Documents, as well as any defects he may discover (punch list). The Contractor shall immediately make such alterations as are necessary to make the Project comply with the Plans and Specifications and to the satisfaction of the Engineer.

Verification, approval, inspection, final inspection, issuance of final acceptance, issuance of final certificate of payment, action or approval by the Owner upon the final certificate of payment or final acceptance shall not in any way relieve the Contractor of responsibility for faulty materials or workmanship.

IX.3 FINAL PAYMENT

When the Contractor shall have completed all of the work in accordance with the terms of the Contract Documents, he shall certify to the Owner that he has completed all of the work. The Contractor shall also prepare and submit to the Owner a Final Request for Payment in an amount which shall be the Contract Amount plus all approved additions, less all approved deductions and less previous payments made. The Contractor shall give "Notice" of the completion of the work by an advertisement in a newspaper of general circulation published within the City or County in which the work has been done, for a period of four successive weeks. A final payment shall not be made upon the Contract until the expiration of 30 days after the completion of the "Notice". Proof of publication of the "Notice" shall be made by the Contractor to the authority by whom the Contract was made by affidavit of the publisher and a printed copy of the "Notice" published. If no newspaper is published in the County in which the work is done, the "Notice" may be given by posting at the courthouse for 30 days, a proof of same shall be made by the judge of probate, sheriff, and the Contractor.

When the Owner and the Engineer have completed a review of the Work and of the request for final payment and accepted all work, final payment of the amount determined to be due under the Contract will be made to the Contractor, provided that:

(1) Any deficiencies in the Work noted during the review shall have been satisfactorily corrected.

(2) The Contractor shall have submitted certified evidence that all payrolls, all amounts due for labor and materials, and all other indebtedness connected with the work have been fully paid and satisfied, and that there are no outstanding claims or demands against the Contractor in any manner connected with the work.

(3) Proof of publication of "Notice" of completion in newspaper in manner described by law.

(4) A properly executed and duly certified voucher for payment, verified by Engineer or other representative.

(5) A release of all claims and claims of lien against the Owner and its agents and Engineer from the Contractor and all major subcontractors (the Owner may waive the requirement for subcontractor releases) arising under and by virtue of the Contract, on form provided by the Owner, duly executed by the Contractor and with the consent of the Surety. The Contractor may specifically exclude claims of the Contractor from the operation of the release if specifically excluded therefrom in stated amounts and the reason therefore. The Contractor may with the consent of the Owner representative, if any subcontractor refuses to furnish such a release, furnish a bond with surety satisfactory to the Owner representative to indemnify against such claims.

(6) In accordance with ALA.CODE §39-2-12(c), a non-resident Contractor

shall satisfy the Owner that he or she has paid all taxes due and payable to the State, the Owner and all applicable political subdivisions.

Upon Project completion and acceptance by the Owner's representatives, but not before the expiration of thirty (30) days after completion of the "Notice", the amount due the Contractor pursuant to the Contract Documents shall be paid. On relocation projects reimbursable by the Alabama Department of Transportation, application for payment may be submitted by the Owner to the Alabama Department of Transportation. When reimbursement funds are received by the Owner from the State, payment will be made to the Contractor.

IX.4 ACCEPTANCE OF FINAL PAYMENT CONSTITUTES RELEASE

The acceptance by the Contractor of the final payment shall release the Owner, the Engineer, as representatives of the Owner, and their officers, employees, agents, and subconsultants from all claims and all liability to the Contractor for all things done or furnished in connection with the Project, and every act of the Owner and others relating to or arising out of the work. No payment, however, final or otherwise, shall operate to release the Contractor or his Sureties from obligations under this Contract and the Performance Bond, Payment Bond, and other bonds, warranties and guarantees as herein provided.

SECTION X WARRANTY AND GUARANTEES

X.1 WARRANTY AND GUARANTEE

The Contractor warrants to the Owner and the Engineer that all materials, work, and equipment furnished under this Contract will be new unless otherwise specified and that all work, materials and equipment will be of good quality, free from fault and defects in conformance with the Contract Documents. All work, materials, and equipment not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The warranty shall be for one year from the date of the Final Acceptance or the date of Substantial Completion of the full Project completed in its entirety, whichever is first. If within one (1) year from the beginning date of the warranty period, any of the work, materials or equipment is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so. This warranty includes all equipment even if the specific equipment warranty from the equipment manufacturer has expired. This obligation shall survive termination of the Contract. The Owner shall give such notice promptly after discovery of the condition.

If the Project involves a roof on a building or other structure, then the Contractor shall execute and provide the Roofing Guarantee. The guarantee shall be delivered to the Owner and Engineer prior to final payment. If the Project involves termite treatment, the Contractor shall furnish to the Owner a written warranty certifying that the applied soil poisoning treatment will prevent the infestation of subterranean termites and that if subterranean termite activity is discovered during the warranty period, Contractor shall re-treat the soil and repair or replace any damage caused by termite infestation. The warranty shall be for a period of five (5) years from the date of treatment signed by Applicator and Contractor.

X.2 CORRECTION OF DEFECTIVE WORK DURING WARRANTY/ GUARANTEE PERIOD

The Contractor hereby agrees to make, at his own expense, all repairs or replacements necessitated by defects in materials or workmanship, provided under the terms of this Contract, and pay for any damage to other works resulting from such defects, which become evident within 1 year after the beginning date of the warranty period by the terms of any applicable special guarantee required by the Contract Documents unless the Owner has previously given the Contractor a written acceptance of such defects. The Contractor shall promptly correct such defects upon receipt of a written notice from the Owner to do so. This obligation shall survive the termination of the Contract.

Unremedied defects identified for correction during the warranty period described herein before, but remaining after its expiration, shall be considered as part of the obligations of the warranty. Defects in material, workmanship, or equipment which are remedied as a result of obligations of the warranty shall subject the remedied portion of the Project to an extended warranty period of 1 year after the defect has been remedied. Repetitive malfunction of equipment shall be cause for equipment replacement and an extension of the guarantee period for the equipment to a date 1 year following acceptable replacement. The Contractor further assumes responsibility for a similar guarantee for all work and materials provided by subcontractors or manufacturers of packaged equipment components.

The Contractor also agrees to hold the Owner and the Engineer and employees harmless from liability or damages, including the Engineer and attorneys' fees, and cost and expenses of litigation of any kind arising from damage due to said defects. The Contractor shall make all repairs and replacements promptly upon receipt of written order for same from the Owner or its agent. If the Contractor fails to make the repairs and replacements promptly, or in an emergency where delay would cause serious risk, or loss, or damage, the Owner may have the defective work corrected or the rejected work removed and replaced, and the Contractor and his Surety shall be liable for the cost thereof. The Contractor during the warranty period shall repair/replace as rapidly as possible any and all equipments, materials, etc., which are found to be defective. Should any items not be repaired/replaced within thirty (30) days from the time it is reported to the Contractor by the Owner, then the warranty period shall be extended on that item for a period equal to the time that the item has remained defective, incomplete, or inoperable as determined by the Owner. The Contractor must certify that the item has been corrected. The Owner's rights under this Article shall be in addition to, and not a limitation of, any other rights and remedies available by law.

Nothing contained in this Section shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of the time period of one year as described in this Section relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

STANDARD SPECIFICATIONS

STANDARD
SPECIFICATIONS

BUILDING

**STANDARD SPECIFICATION
FOR
PAINTING**

SECTION 1

1.0 GENERAL

Paint work shall consist of furnishing all labor, materials, scaffolding, and equipment necessary for the complete finish coating of all equipment, piping and appurtenances, exposed structural work, concrete surfaces, masonry surfaces, woodwork, miscellaneous iron work and similar items except those surfaces specifically excepted. Where items are not specifically mentioned as requiring painting work but not specifically excepted, they shall be finished in the same manner as specified for similar items. It is the intent of these Specifications that the painting work be complete, and that no items of equipment, structural components, or surface normally requiring finish coatings be left unpainted. In general, exterior brick surfaces, concrete walls of basins, factory finished items, aluminum, stainless steel, and galvanized items, shall not be painted, except as hereinafter specified. Gypsum wall board shall be painted as noted on the Drawings or as specified in the Standard Specification for Gypsum Wall Board.

2.0 STANDARD OF QUALITY

Products of Tnemec Company, Inc., North Kansas City, MO is established as a standard of quality. Equal products may be approved by the Engineer. An "or equal" product will not be approved that decreases from that specified hereinafter recommended dry film thickness or the number of coats to be applied, or that changes the generic type of coating, or that fails to equal or exceed the manufacturer's printed performance data of the specified product(s) as specified hereinafter. Tank painting shall comply with AWWA D-102, Steel Structures Painting Council SSPC-PA2 as applicable, approved paint manufacturer's specifications, and as specified herein.

All paint used on surfaces which will be in contact with potable or treatable water shall be guaranteed by the paint manufacturer to be suitable for the intended surface and not to be a hazard to health. Any paint which cannot be so guaranteed, whether or not specified by manufacturer and product designation, shall not be used.

All paint used for intermediate and finish coats at sewage treatment plants and sewage pumping stations where hydrogen sulfide may be present, shall be guaranteed by the paint manufacturer to be fume proof and suitable for sewage plant atmosphere containing hydrogen sulfide. Any paint that cannot be so guaranteed shall not be used.

3.0 PREPARATION OF SURFACES

The Contractor shall properly prepare surfaces prior to proceeding with work and shall be held responsible for any poor work caused by improperly prepared surfaces. The

application of the first coat of paint by the Contractor shall be construed as an acceptance by him of the responsibility for the condition of the base. Preparation of surfaces shall be as generally outlined below unless recommended otherwise by the manufacturer and approved in advance by the Engineer.

All surfaces shall be thoroughly cleaned and free from all dirt, oil, grease, rust, weld slag, projections, and other foreign matter before priming. This cleaning shall be done by the use of sandpaper, steel scrape, wire brush, or sandblasting as required. Where required, metal surfaces shall be cleaned with a liquid solvent to remove dirt or grease before application of paint materials. Metallic surfaces on which fluids have been used shall be thoroughly cleaned before any paint is applied. Where rust or scale is present, the Contractor shall prepare surfaces in accordance with these Specifications. He shall sandblast or thoroughly wire brush surfaces before priming. Primer shall be applied immediately after surface preparation within the same day and before rusting has begun. The Contractor shall repair all items that have been shop primed or finished coated (excluding items to be prepared and coated onsite) that have become damaged.

A. Metal

1. All Metal. Grind smooth and remove rust, scale, and foreign materials.
2. Submerged Metal. SSPC-SP10-63, Near White Blast.
3. Non-submerged Metal. SSPC-SP6-63, Commercial Blast.
4. Machinery and Equipment. SSPC-SP2-63, Hand Tool.
5. Non-ferrous Metal. All non-ferrous metal shall be SSPC-SP1 solvent cleaned followed by abrasive blasting in accordance with SSPC-P 7 Brush Off Blast Cleaning to create a uniform profile of 1.0 – 2.0 mils.
6. Submerged Ductile Iron (OD): NAPF 500-03-04: “External Pipe Surface Condition”.

- B. Masonry. Repair damaged areas, brush-off blast, and wash to remove loose materials.
- C. Submerged Concrete Surfaces. Abrasive blast to provide adequate profile for coating system (Reference SSPC-SP 13. ICRI CSP 5).
- D. Wood. Patch damaged areas, sand, dust, and dry before paint application.
- E. Tar-Coated Surfaces. Tar-based coating shall not be allowed.

Steel, ductile iron, cast iron, and other ferrous metal surfaces not to be immersed in liquid shall receive one shop coat of N140 Pota-Pox Plus applied at 7.0 - 9.0 mils DFT. Such surfaces shall be prepared for shop coating in accordance with Steel Structures Painting Council Specification or NAPF Standards referenced herein. Shop coats shall be compatible with primers and finished coats specified herein for subsequent field application. After receipt of such components, and proper repairs are completed if necessary, surfaces of components shall be prepared as follows:

- Shop Primed Steel Surfaces Submerged or in Vapor Zone Service (i.e., within a 10 ft envelope along/around contained process streams/water-levels that are open to

atmosphere and everywhere within an enclosed process structure): All areas damaged during shipping and installation shall be abrasive blast cleaned in accordance with SSPC-SP 10 Near White Blast Cleaning. All areas of intact shop primer shall be abrasive blast cleaned in accordance with SSPC-SP 7 Brush-Off Blast Cleaning to provide a uniform anchor profile. All edgers shall be feathered.

- Ductile Iron Pipe Surfaces Submerged or in Vapor Zone Service: All areas damaged during shipping and installation shall be abrasive blast cleaned in accordance with NAPF 500-03-04: "External Pipe Surface Condition". All areas of intact shop primer shall be abrasive blast cleaned in accordance with SSPC-SP 7 Brush-Off Blast Cleaning to provide a uniform anchor profile. All edgers shall be feathered.
- Non-Submerged Steel and Ductile Iron Surfaces: All shop primed surface shall be power washed in accordance with SSPC WJ 4 Light Cleaning (minimum 3,500 psi) to remove all dirt, dust, chalk, loose paint, as well as any other foreign matter. All areas where the shop primer has been damaged shall be cleaned in accordance with SSPC-SP 11 Power Tool Cleaning to Bare Metal or abrasive blast to an SSPC-SP 6 Commercial Blast Cleaned Surface.
- Galvanized Steel: Where galvanized surfaces are specified to be painted or coated, such surfaces shall be abrasive blasted in accordance with ASTM D 6386 to provide a uniform 1.0 – 2.0 mils anchor profile

Where steel, cast iron, ductile iron, or other ferrous metals (such as motor housings, stands and similar items) are received on the job with finish coats already applied, cleaning shall be in accordance with Steel Structures Painting Council Specifications (SSPC-SP1, SSPC-SP2, SSPC-SP7), as required. A tie coat shall be applied in accordance with the painting schedule. Factory applied coatings shall be compatible with field coatings specified. Steel and other ferrous metals surfaces to be immersed in liquid shall be sandblasted in the field in accordance with Steel Structures Painting Council Specification for White Metal Blast Cleaning (SSPC-SP10). Ductile iron surfaces which will be immersed in liquid shall be cleaned in accordance with SSPC-SP6 Commercial Blast Cleaning.

Concrete and masonry surfaces shall be allowed to age for at least 30 days before coatings are applied. Concrete surfaces (walls, floors, beams, columns, ceilings) specified to be painted or coated shall be properly cleaned and etched to secure a granular surface free from glaze (SSPC-SP 13/ICRI CSP 1-2). When etching has been completed, the surface shall be rinsed, tested, and neutralized if required. Concrete surfaces specified to receive epoxy coatings shall be sandblasted or mechanically abraded in accordance with SSPC-SP 13 /ICRI CSP 3-5 (or as recommended by the manufacturer) to remove all laitance and surface film and shall produce a profile suitable for the specified coating. Where it is found that etching of high density precast concrete items (such as hollow core roof slabs) shall not provide adequate grip for standard masonry coatings, the Contractor shall use a coating particularly suitable for application on such surfaces, and such coating shall be applied at no extra cost to the Owner. Concrete block masonry surfaces shall be cleaned and prepared for painting by scraping or wire brushing (SSPC-SP2) or by air blasting. Concrete floors, where specified in the Plans or Specifications to be painted, shall be prepared by mechanical means in accordance with the manufacturer's instructions. All concrete to be coated shall be tested for

moisture vapor transmission in accordance with ASTM F1869. Should readings in excess of 3lb per 1,000 square feet be obtained, the surface shall be treated with Tnemec 208 Epoxoprime MVT in accordance with the manufacturer's instructions.

The Contractor shall clean wood surfaces to be painted of all dirt, soil, or other foreign substances with scrapers, mineral spirits, and sandpaper, as required. He shall smooth these finished surfaces exposed to view, using sandpaper and shall dust them off. He shall scrape and clean small, dry seasoned knots before application of the priming coat. After priming, he shall fill holes and imperfections in finish surfaces with putty or plastic wood filler. He shall sandpaper smooth the filled holes or imperfections when the putty or wood filler has dried and cured.

4.0 APPLICATION

Unless approved in writing by the manufacturer and agreed upon in advance by the Engineer, no painting will be allowed until the paint manufacturer's representative is on the job. All painting will be accomplished in accordance with the paint manufacturer's specifications. The paint manufacturer's representative shall test all paint mil thickness and holidays in the presence of the Engineer. The Contractor will be required to perform Holiday Testing as soon as the work is sufficiently cured according to the manufacturer's recommendations. All pinholes and deficiencies will be repaired. Any coating not meeting specifications will be reworked. Adequate ventilation which will effectively remove solvents shall be provided for proper drying of paints on interior surfaces.

It shall be the responsibility of the Contractor to ensure the compatibility of the field painting products which will be in contact with each other or which will be applied over shop painted or previously painted surfaces. Paint used in successive field coats shall be produced by the same manufacturer but with varying colors and shades. Paint used in the first field coat over shop painted or previously painted surfaces shall cause no wrinkling, lifting, or other damage to underlying paint.

No coating or paint shall be applied when (1) the surrounding air temperature or the temperature of the surface to be coated or painted as measured in the shade is below that recommended by the manufacturer and a minimum of 50°F, (2) when the substrate temperature exceeds the maximum temperature recommended by the manufacturer, or (3) when the substrate temperature is less than 5°F above the dew point. Dew point shall be measured by use of an approved instrument in conjunction with the U.S. Department of Commerce Weather Bureau Psychrometric Tables. Paint shall not be applied to wet or damp surfaces and shall not be applied when the relative humidity exceeds 85 percent. The painting contractor is responsible for making himself aware of the weather conditions that would preclude him from painting under the above conditions.

5.0 SURFACES TO BE PAINTED

Except as specifically excluded below or indicated in the Plans. All metal subject to rust, piping, equipment, wood, and concrete masonry, and outdoor exposed (non-insulated) PVC/CPVC piping shall be painted in accordance with the coating systems specified

herein. Unless otherwise specified or indicated in the Plans, the following surfaces shall be left unpainted:

- a.Exposed surfaces of aluminum, except exposed ductwork.
- b.Polished, finished, or unfinished stainless steel, except flashings and counter flashings.
- c.Galvanized surfaces, except piping, exposed interior conduit, and exposed ductwork.
- d.Piping concealed in inaccessible plumbing chases and above suspended ceilings.
- e.Rubber and plastics.
- f.Acoustical panel ceilings.
- g.Face brick.
- h.Exterior concrete more than one foot below finished grade or normal low water level.
- i.Surfaces specified to be factory finished.
- j.Existing surfaces not noted specifically in the Plans or Specifications.

All exposed interior and exterior poured-in-place concrete for walls, beams, columns, and precast concrete members (i.e. double tees, hollow core slabs, etc.) for non-water containing structures shall be painted to one foot below grade on the exterior and to the horizontal slab/surface on the interior with Thorocoat, Fine by BASF, Tex Cote or Tnemec Series 157 Enviro-Crete. For water containing structures, two coats of Thoroseal by BASF shall be used to one foot below grade and one foot below normal low water levels. Underground vaults, wet wells, electrical chases and other similar areas do not require coating unless shown on Drawings. Coating shall be applied per the manufacturer's recommendations as a two-coat acrylic based system achieving a dry film thickness of 12-16 mils. Prepare a 5' by 5' complete a test section to demonstrate the final color prior to application of the coating system. Coating shall not proceed until the test section is approved by the Engineer.

On any single structure, use the same product for all areas to be coated with a specified color. Do not mix colors or products from more than one source.

Curing compound on structural concrete construction that is to receive a protective coating shall be prohibited. The applying contractor shall notify other trades of this requirement. The Engineer may waive this prohibition and allow use of a curing compound meeting the requirements of the coating manufacturer. Where curing compounds are used, Contractor shall assume complete responsibility for removing compound as required to result in an acceptable coating finish. Existing items requiring coating will be set forth in the Plans.

Cementitious crystalline waterproofing shall be applied where called for on the Plans. Crystalline waterproofing shall form non-soluble crystals of dendritic fibers within the pores and capillary tracts of concrete. Crystalline waterproofing shall be the Xypex line of products as manufactured by Xypex Chemical Corporation, or Engineer approved equal. Surfaces receiving waterproofing coating shall be prepared according to manufacturer's recommendations. Coating shall be slurry applied in accordance with the manufacturer's recommendations and consisting of the following:

- A. 1st Coat: Xypex Concentrate at 300 square feet per 60lb pail or 1/16".
- B. 2nd Coat: Xypex Modified at 300 square feet per 60lb pail or 1/16"

All painting shall be in accordance with the Engineer/Owner's color scheme selected during construction. Where specific color scheme is not required by Owner/Engineer during construction, the scheme specified herein shall apply. Many different color variations may be required for architectural effect, piping identification, or other reasons required by the Engineer/Owner. The painting contractor shall allow sufficient time during construction and the submittal process for color scheme selection, coordination, and delivery of coatings.

Factory finished surfaces which have become damaged prior to acceptance by the Owner shall be spot primed and repainted with materials equivalent to those used in the original application. If, in the opinion of the Engineer, spot repair of the damaged area is not satisfactory, the entire surface or item shall be repainted as required by the Engineer.

Throughout the work the Contractor shall use drop cloths, masking tape, and other suitable measures to protect all surfaces from cleaning operations, accidental spraying, spattering, or spilling of paint. The Contractor shall be responsible for and shall correct and repair damage resulting from his operations or the operations of those responsible to him. Paint deposited on surfaces which are not being painted at the time shall be immediately removed. Bituminous paints spilled or dropped on any material except metals shall be surface cleaned and spot painted with aluminum paint prior to applying the specified paint. Exposed concrete or masonry not specified to be painted which is damaged by paint shall be either removed and rebuilt or, where authorized by the Owner, painted with two coats of masonry paint.

6.0 MISCELLANEOUS - TANKS AND BASINS

Upon completion, allow the tank to dry at least 7 days or greater if recommended by the paint manufacturer after the finish coat has been applied and before the tank is sterilized and filled with water. During this period, both the door at the bottom and at the top must remain open.

Paint is to be applied by conventional or airless spray on the interior of the tank in accordance with the manufacturer's requirements. Spray coating of the interior surface shall have an approved method for overspray protection at the discharge from the venting fan. The exterior coating shall be applied with roller or brush.

After the tank has been thoroughly cleaned of all dirt, scale, etc., and after the Engineer has approved it, the Contractor shall sterilize the structure in accordance with AWWA requirements. A series of bacteriological samples shall then be taken and delivered to the state laboratories for examination. This procedure shall be repeated until satisfactory bacteriological samples are taken. Upon receipt of satisfactory results and approval of the Engineer, the facility may be turned into the system.

7.0 MATERIALS

All materials required for painting shall be delivered in unbroken packages, bearing the brand and name of the manufacturer, and all materials shall be subject to review by the Engineer. All materials used shall be safely stored and stored in accordance with

manufacturer's requirements. The Contractor shall provide access to storage space for the Engineer.

Paints approved for various surfaces shall be as manufactured as listed below. The manufacturer shall make available to the Contractor the services of a technical representative who shall be consulted with respect to drying times, cure-out times, compatibility of primers and overcoats, and miscellaneous problems that might arise during the progress of the work. No claim of the Contractor concerning the unsuitability of the materials specified or his inability to produce first-class work with the same, will be entertained, unless such claim is made in writing to the Engineer before the Contract is signed.

TNEMEC - PAINTING SYSTEMS

<i>Item</i>	<i>Prime Coat</i>	<i>Finish Coat(s)</i>
Masonry - Interior Non-Submerged	Fill porous surfaces with 130 EnviroFill @ 60-80 sq. ft./gal	1 Coat 113 Tneme-Tuffcoat @ 4.0 – 6.0 mils DFT. 1 Coat 297 Enviro-Glaze @ 2.0 – 3.0 mils DFT
Masonry – Exterior Above Grade	NONE	2 coats 156 Enviro-Crete @ 8.0 – 10.0 mils DFT per coat
Masonry - Exterior Below Grade	NONE	2 coats 46-465 @ 8.0 – 10.0 mils DFT per coat
Masonry - Submerged in Potable Water	218 MortarClad @ 1/16" minimum. Fill all bug holes, voids, and seal surface	22 Epoxoline @ 20 – 25 mils DFT
Masonry – Submerged in Wastewater	218 MortarClad @ 1/16" minimum. Fill all bug holes, voids, and seal surface	1 coat 436 Perma-Shield FR @ 100 – 125 mils DFT
Concrete Floors - Opaque Finish *	208 Epoxoprime MVT @ 6.0 – 8.0 mils DFT	2 Coats 280 Tneme-Glaze @ 6.0 – 8.0 mils DFT per coat
Concrete Floors - Clear Sealer *	NONE	1coat 201 Epoxoprime @ 6.0 - 8.0 mils DFT. 1 coat 295 CRU @ 2.0 – 3.0 mils DFT
Chemical Sumps *	218 MortarClad @ 1/16" minimum. Fill all bug holes, voids, and seal surface	2 coats 239SC Chembloc @ 6.0 – 8.0 mils DFT per coat.
Concrete Floors - Double * Laminate Quartz Floor	222 Deco-Tread @ 20 mils DFT- Broadcast to refusal - Repeat	One grout coat 222 Deco- Tread @ 6.0 – 8.0 mils One finish coat of 248 Everthane;@ 2.0 - 3.0 mils DFT
Wood Interior and Exterior	10-99W Primer @ 1.0 - 2.0 mils DFT	2 coats 1029 Enduratone @ 1.0 - 2.0 DFT per coat
Interior and Exterior Non-Submerged Metal	Prime: Series 91 H20 Hydro-Zinc @ 2.5 – 3.5 mils DFT Intermediate: Series 66 Epoxoline @ 2.0 - 3.0 mils DFT	1094 @ 2.0 – 3.0 mils DFT

<i>Item</i>	<i>Prime Coat</i>	<i>Finish Coat(s)</i>
Submerged Steel and Ductile Iron Pipe - Potable Water	Primer: Series N140-1211 Pota-Pox Plus @ 5.0 – 7.0 mils DFT.	2 coats 21 Epoxoline @ 8.0 – 10.0 mils DFT per coat.
Submerged Steel and Ductile Iron Pipe – Wastewater Open Top Structures	Primer: Series N140-1211 Pota-Pox Plus @ 5.0 – 7.0 mils DFT. Intermediate: N140 Pota-Pox Plus @ 4.0 – 6.0 mils DFT.	142 Epoxoline @ 10.0 – 12.0 mils DFT
Submerged Steel and Ductile Iron – Wastewater Closed Top Structures – Submerged and Vapor Zone	Series N140 Pota-Pox Plus @ 4.0 - 6.0 mils DFT	Finish: Series 435 Perma-Glaze @ 25.0 – 35.0 mils DFT.
Ductile Iron Pipe – Submerged and Vapor Zone Service - Wastewater	Series N140 Pota-Pox Plus @ 6.0 – 8.0 mils DFT	435 Perma-Glaze @ 25.0 – 35.0 mils DFT
Interior and Exterior Non-Submerged Ductile Iron Pipe	Prime: N140 Pota-Pox Plus @ 7.0 – 9.0 mils DFT Intermediate: Series 66 Epoxoline @ 2.0 - 3.0 mils	1094 Endura-Shield @ 2.0 – 3.0 mils DFT
Non-Submerged Ductile Iron – Vaults	Prime: N140 Pota-Pox Plus @ 7.0 – 9.0 mils DFT Intermediate: Series 66 Epoxoline @ 3.0 - 5.0 mils	Finish: 66 Epoxoline @ 4.0 – 6.0 mils
Outdoor, exposed (non-insulated) PVC/CPVC piping**	Series 20 Pota-Pox @ 3.0 – 5.0 mils DFT	Series 1070 Fluoronar @ 2.0 – 3.0 mils DFT

* Where called for on Drawings.

** Surface Preparation: Clean and dry. Sand to provide a uniform, dense, surface profile of at least 1.5 mils

Thinners shall be as recommended by the paint manufacturer. No other products will be used.

8.0 PIPING AND EQUIPMENT IDENTIFICATIONS

All installed process equipment and similar items (i.e. pumps, motors, tanks [process tanks and chemical tanks, etc.] etc.) shall have its equipment number (e.g. “1”, “2”, etc.) prominently painted on the equipment (or on both the inside and outside of the equipment hatch for submersible pumps). The number shall be neatly stenciled in 3" high letters. High impact plastic adhesive strips may be used in lieu of painting if they have permanent adherence.

Exposed piping and piping in accessible areas shall be identified with lettering or tags designating the service of each piping system, shall have flow directional arrows, and shall be color coded as shown below. Colors to be used shall be verified in the submittal process and changed as directed by the Engineer at no additional cost to the Owner.

Piping shall be completely painted with the selected colors, unless approved otherwise by the Engineer. Color coded vinyl snap on markers with flow direction arrows (by

Brady or equal) shall also be used on piping to be left unpainted. All other piping specified to be painted shall match adjacent surfaces, unless otherwise directed by the Engineer.

Lettering and flow direction arrows shall be provided near equipment served, adjacent to valves, on both sides of walls, and floors where pipe passes through, at each branch or tee, and at intervals of not more than 30 feet in straight runs of pipe. If, in the opinion of the Engineer, foregoing requirements will result in an excessive number of labels or arrows on a run of pipe, the number required shall be reduced as directed.

Where the outside of the pipe or pipe covering is 5/8 inch or smaller, metal tags shall be provided instead of lettering. Tags shall have the selected identifying lettering stamped in and shall be fastened to the pipe with suitable chains. Metal tags and chains shall be aluminum or stainless steel. Where tags are used, pipe shall be the color selected.

Lettering on piping shall be painted, stenciled, or snap-on markers. Snap-on markers shall be plastic sleeves, Brady "Bradysnap-On B-915" or Seton "Setmark". Letter size shall be as follows:

<u>Outside Diameter of Pipe or Covering</u>	<u>Minimum Height of Letters</u>
5/8 inch and smaller	Metal Tags - 1/4 inch
3/4 inch through 4 inch	3/4 inch
5 inch and larger	2 inches

Aluminum tags shall be provided for all valves and gates. Buried valves with concrete pads shall be tagged as shown on the drawings. For all other valves, provide numbered aluminum tags fasten to valves with aluminum or stainless steel chains. Coordinate numbering with Engineer during submittal process.

8.1 WATER PLANT AND WATER BOOSTER STATION PIPING COLOR CODE:

A. Water Lines:

Raw	110GN Clover
Settled or Clarified	10GN Aqua Sky
Finished or Potable	11SF Safety Blue

B. Chemical Lines:

Alum or Primary Coagulant	04SF Safety Orange
Ammonia	00WH Tnemec White
Carbon Slurry	35GR Black
Caustic	02SF Safety Yellow with 09SF Safety Green Band
Chlorine (Gas and Solution)	02SF Safety Yellow

Fluoride	25BL Fountainbleu with 06SF Safety Red Band
Lime Slurry	37GN Irish Spring
Ozone	02SF Safety Yellow with 04SF Safety Orange Band
Phosphate Compounds	37GN Irish Spring with 06SF Safety Red Band
Polymers or Coagulant Aids	04SF Safety Orange 09SF Safety Green Band
Potassium Permanganate	14SF Safety Purple
Soda Ash	37GN Irish Spring with 04SF Safety Orange Band
Sulfuric Acid	02SF Safety Yellow with 06SF Safety Red Band
Sulfur Dioxide	37GN Irish Spring with 02SF Safety Yellow Band

C. Wastewater:

Backwash Waste	68BR Twin
Sludge	84BR Weathered Bark
Sewer (Sanitary or Other)	34GR Deep Space

D. Other:

Compressed Air	91GN Balsam
Gas	28RD Monterrey Tile
Other Lines	32GR Light Gray

8.2 WASTEWATER PLANT AND LIFT STATION PIPING COLOR CODE:

<u></u>	<u>Generic Color</u>	<u>Tnemec Color I.D.</u>
<u>Chlorine (Gas and Solution)</u>	Yellow	OSHA Safety Yellow (02SF)
<u>Compressed Air</u>	Dark Green	Balsam (91GN)
<u>Fire Hydrant</u>	Red	OSHA Safety Red (06SF)
<u>Lime</u>	Light Green	Irish Spring (37GN)
<u>Polymers or Coagulant Aids</u>	Purple	OSHA Safety Purple (14SF)
<u>Potable Water</u>	Dark Blue	Safety Blue (11SF)
<u>Sewage Plant Effluent (Non-Potable Water)</u>	Clay	Terra Cotta (07RD)
<u>Sewer (Sanitary or Other)</u>	Dark Gray	Deep Space (34GR)
<u>Sludge (Dark Brown)</u>	Dark Brown	Weathered Bark (84BR)
<u>Primary Sludge</u>	Dark Brown with Yellow Label (Primary)	Weathered Bark (84BR) OSHA Safety Yellow (02SF)
<u>Return Activated Sludge</u>	Dark Brown with Red Label (RAS)	Weathered Bark (84BR) OSHA Safety Red (SC09)
<u>Waste Activated Sludge</u>	Dark Brown with Light Green Label (WAS)	Weathered Bark (84BR) Daiquiri Ice (PA30)
<u>Primary Scum</u>	Dark Brown with Light Gray Label (Scum)	Weathered Bark (84BR) Light Gray (IN01)
<u>All Other Non-Process Lines</u>	Light Gray	Light Gray (32GR)

EQUIPMENT SPECIFICATIONS

**EQUIPMENT SPECIFICATION
FOR
ALL EQUIPMENT**

SECTION 1

1.0 GENERAL

The requirements in this “ALL EQUIPMENT” Specification apply to all equipment provided for this project. Where more stringent requirements for a piece of equipment are contained in the Contract, the more stringent requirements shall apply. **The requirements in this “ALL EQUIPMENT” specification apply to all equipment and all specifications for all equipment** and this “ALL EQUIPMENT” Specification shall be considered to be an integral part of all other equipment specifications.

The requirements in this “ALL EQUIPMENT” Specification also applies to all Electrical equipment and all SCADA equipment provided for the project. The requirements in this “ALL EQUIPMENT” specification shall be considered an integral part of all Electrical and all SCADA specifications.

The Contractor shall provide all labor, material, equipment, and incidentals, etc. to furnish, install, and place into proper operating condition all the equipment and appurtenances as shown on the Drawings or described in the Specifications. The equipment manufacturer shall completely design and furnish a coordinated and completely engineered system to meet all the conditions required by the project.

The General Specifications contain extensive, detailed submittals, shop drawing, and O&M Manual submittal requirements. The Contractor shall require all equipment manufacturers and suppliers to understand and fully comply with all shop drawing, submittal, and O & M Manual requirements in the General Specifications. The Contractor shall carefully review and comply with all Submittal and Shop Drawing requirements, including O & M Manual requirements, as per the General Specifications. All exceptions to the project requirements must be listed on the “**EXCEPTIONS**” sheet included with the submittal.

In order to assure standardization, uniform quality, ease of maintenance, and minimal parts storage, all equipment called for under individual equipment specifications shall be supplied by a single manufacturer who, through the Contractor, shall be fully responsible for its design, coordination, and performance.

No equipment shall be supplied by any manufacturer not regularly engaged in the manufacturing and production of equipment for the same purposes as used on the project. The manufacturer shall have installed and had in satisfactory use for a period of not less than five (5) years a minimum of ten (10) installations of similar size as shown in plans for this project comparable to the units specified. No consideration will be given to an individually sized equipment that has not been commercially available for five (5) years.

The equipment assemblies shall include all necessary equipment and appurtenances. Standard manufactured equipment shall be modified if necessary to meet all requirements of the plans and specifications. The equipment is designed around the first manufacturer listed on the List of Material Suppliers and Equipment Manufacturers, where applicable. If changes in the project are necessary due to the use of equipment of a different manufacturer, the Contractor shall submit such changes to the Engineer. The Contractor shall bear all costs associated with such changes. The listing of a manufacturer, whether in the

plans, specifications, bid documents, or contract documents, in no way relieves that manufacturer from meeting all the requirements of the plans and specifications. Note that the equipment specified herein may be non-standard or non-typical.

All equipment shall be designed and manufactured for reliable and trouble-free performance. All equipment shall provide dependable and trouble-free operation.

The Drawings and Specifications illustrate and specify functional and general construction requirements of the equipment and do not necessarily show or specify all components, wiring, piping, or accessories, etc. required to make a completely integrated system. The drawings do not show all details of all equipment or installation requirements. The Contractor shall provide all components, piping, wiring, mounting devices, supports, accessories and labor, etc., required for a complete, workable and integrated system. The Contractor shall coordinate these with the actual equipment manufacturer who provides the equipment and shall install all components in accordance with the manufacturer's requirements except where the requirements of the contract drawings or specifications are more stringent, in which case they shall be followed.

All equipment (including, but not limited to, motors, drive equipment and components, electrical components, controls, and control panels) shall be designed for and have a long trouble-free life and perform reliably and properly in the environment in which it will be installed. Where equipment or control panels are installed outdoors, it will be subject to ambient temperatures from minus 10 to plus 110 degrees, direct sunlight, blowing rain, nearly continuous high relative humidity, periodic icing, corrosive atmospheres and splashing typically associated with sewage. Equipment may be operated intermittently, continuously, or in a standby mode.

All equipment, etc., shall be manufactured to fit within the space allocated on the drawings. No additional space shall be available or provided. This also includes control panels, electrical appurtenances, and piping, etc. Provide special designs if needed to fit in available space. Coordinate with available space.

The equipment shall be powered by the electrical sources shown in the electrical drawings for the project.

All electrical panels, boxes, conduits, unistrut, hardware, components, and appurtenances, attachments, etc., shall be stainless steel or aluminum and shall be corrosion resistant. Coated steel components are permitted only where noted.

All pipe hangers, unistrut, hardware, components, and appurtenances, attachments, etc., shall be stainless steel or aluminum and shall be corrosion resistant. Provide non-metallic components where called for in the drawings.

Orient all flowmeters, pressure gauges, light, and other instrumentation, etc. such that it is promptly and easily visible and readable.

When PLCs are included in a submittal, provided and whenever else requested, submit descriptions of the control methodology that will be employed. This shall include a description of operation, interlocks, and other features to fully understand the functioning and control of the system. Manufacturer-provided panels shall meet all requirements of Control Panel Specifications (in other specifications sections). Such panels shall have a main, pad-lockable circuit breaker. Prior to making the first submittal, all panels shall be completely and thoroughly coordinated with all other project equipment, controls, and SCADA system, etc. The submittal may be rejected without review if it appears that careful and comprehensive coordination was not performed by the Contractor or Manufacturer, etc.

All equipment shall be designed solely by the Manufacturer with all safety

features and guards, etc., as required to meet all standards of OSHA and all applicable codes, etc. The Manufacturer shall design all equipment to allow for safe and convenient operation and maintenance, etc. The manufacturer shall design and provide all safety features and guards, etc., as desirable or recommended for the safety and protection of operators, maintenance personnel, and others.

All panels shall be designed by the Panel Manufacturer to meet the requirements of the project and of the installation. If control drawings are included in the plans, the manufacturer shall consider those as conceptual drawings showing only minimum requirements. The detailed design is the responsibility solely of the panel manufacturer who shall include additional features as desirable for trouble-free, reliable operation. Include appropriate surge protection. Where located outdoors or in non-conditioned space, panels shall be furnished with condensation heaters. NEMA 4 or 4X panels shall be furnished with 3-point latches. Clips or similar closure devices shall not be permitted.

Miscellaneous hardware, nuts, bolts, etc., shall be stainless steel when the equipment will be located outdoors, or in non-conditioned space, or in humid areas.

All control panels shall be fully tested prior to shipment from the manufacturer. Written certification shall be provided to the Engineer certifying that the testing demonstrated that all contract requirements were complied with. Mechanical equipment shall be tested prior to shipment to the extent practical or required.

Spare parts shall be boxed separately from the regular items. A separate packing list clearly labeled "SPARE PARTS" is required for inventory purposes. Package each part individually or in sets in moisture proof containers or wrappings, clearly labeled with part name, manufacturer's parts/stock number, and the equipment it is provided for.

Provide all the spare parts recommended by the manufacturer for the number of units and equipment installed. Provide any special tools required to install, operate, or maintain the equipment. All spare parts shall be delivered to the Owner, in the presence of the Engineer, at the end of construction and in one occurrence (i.e. one transfer for all spare parts). The Contractor shall prepare a detailed list of all the spare parts for the project, and the Owner shall sign for the spare parts received.

The Contractor shall inspect all equipment and materials against reviewed shop drawings at the time of delivery. Equipment and materials damaged or not meeting the requirements of the reviewed shop drawings shall be immediately returned for replacement or repair.

All equipment and its components shall be properly stored in a manner that will protect the equipment and insure long life. As a minimum, all equipment shall be stored in accordance with the equipment manufacturer's recommendations, unless more stringent requirements are contained in the plans or specifications. All equipment shall be properly stored and maintained during storage. All storage requirements also apply to equipment that has been installed but is not in full time normal operations.

The Contractor shall thoroughly coordinate all dimensions for equipment with other shop drawings and with the plans and submit to the Engineer any required changes in concrete or piping dimensions, etc., that may be needed to allow the equipment to fit, to perform properly, and to be maintained or replaced. Concrete and appurtenances shall be placed by the Contractor well within the manufacturer's required construction tolerances. Templates provided by the manufacturer shall be utilized to set embedded anchor bolts.

Comply with all painting requirements as contained in the "Standard Specifications for Painting". Refer to and understand all the "Standard Specifications for

Painting” for the project. Provide the primer specified in the “Standard Specifications for Painting”. Finish field preparation and painting shall be performed as specified in the Painting Section. The Contractor shall touch-up all shipping damage to the paint as soon as the equipment arrives on the job site. The equipment should be totally re-coated if needed for a uniform and pleasing appearance.

All equipment, etc., shall be manufactured to fit within the space allocated on the drawings. No additional space shall be available or provided.

Refer to and comply with all other sections of the specifications including but not limited to electrical, controls, control panels, instrumentation, and motors, etc..

Fully coordinate all equipment requirements, controls, and connections, etc. in a timely manner. Coordinate supports and piping, etc.

Provide all miscellaneous accessories, brackets, supports, instrumentation, appurtenances, and adaptors, etc. that are required for the specific installation on this project. If the equipment manufacturer recommends that the water pressure of connecting water lines be limited, he shall provide a water pressure regulator.

Where initial maintenance (oil changes, tightening belts or chains, etc.) are recommended to be performed at 6 months or less after startup, such maintenance shall be performed by the Contractor utilizing factory authorized personnel.

All anchor bolts shall be stainless steel and shall be provided by the equipment manufacturer who shall select the bolts based on the maximum possible loading for the equipment.

For all electrical, control, or instrumentation panels, the colors of indicator lamps shall be consistent throughout the project and plant. Swap or replace lamps and LEDs at startup as needed for consistency.

Prior to assembly, all stainless steel bolts and nut threads shall be coated with a non-seizing compound by the Contractor.

The Contractor shall install all project components and all equipment in strict accordance with manufacturer recommendations. The Contractor shall carefully follow all manufacturer safety recommendations and shall continuously utilize effective safety practices.

The Contractor shall install all project components and all equipment in strict accordance with manufacturer recommendations. The Contractor shall carefully follow all manufacturer safety recommendations and shall continuously utilize effective safety practices.

The manufacturer shall include in his price and schedule trips to the project site as needed for equipment installation, start-up assistance, inspection of installed equipment for proper operation as noted below, and operator training, etc. The manufacturer's representative shall be from the factory and shall have a minimum of 10 years of meaningful and acceptable experience starting up such equipment. The representative shall be well qualified to perform the startup and training. The Contractor shall submit the representative's qualifications for review and approval prior to scheduling the visit.

After the Contractor has installed the equipment and it is capable of being operated, the equipment manufacturer shall furnish a qualified representative meeting above stated requirements to inspect the equipment and to supervise field testing and start-up.

Install equipment and accessories in accordance with the drawings, approved shop drawings, and the manufacturer's installation instructions and recommendations. All final electrical connections shall be made by the electrical sub-contractor. The Contractor shall make adjustments including but not limited to level, plumbness, and alignment, provide lubricants, lubricate all equipment, and adjust all controls, equipment, and appurtenances in

accordance with the manufacturer's instructions and leave equipment in proper working condition. He shall carefully test all safety equipment and insure it operates as recommended. Where required for proper installation, the Contractor shall install non-rusting, non-shrink grout. The Contractor shall verify that the electrical power available is proper and that motor rotation is correct. Unless otherwise allowed, new or rebuilt equipment shall be started up on a Monday, Tuesday, or Wednesday to allow some time for malfunction to occur prior to the weekend. Where desirable for the project, new or rebuilt equipment shall be started up in the morning. The Contractor shall demonstrate all features of the equipment and its controls and demonstrate that the equipment operates properly under all types of conditions including but not limited to high speed and low speed, etc. Where units are furnished with more than one pulley combination for speed changes, the Contractor shall demonstrate that the equipment operates properly at all speeds provided. The Contractor shall coordinate with the Engineer to determine which set of pulleys should be left on the equipment at the conclusion of testing and demonstration. The testing shall also include safety features, operation from local and remote control stations, and local and remote alarm simulation.

The Contractor shall conduct testing to demonstrate to the Owner's satisfaction that the equipment performs as required. Performance and/or installation testing shall be repeated at no cost to the Owner if requested by the Owner after experiencing problems with the equipment or after repairs or after any indication that the testing may potentially not be representative.

After testing, the Contractor, in conjunction with the manufacturer's representative, shall make whatever adjustments are required for the anticipated operating conditions.

The Manufacturer's representative shall sign a Certificate of Compliance on a form provided by the Engineer stating that he has thoroughly reviewed the equipment and its installation, and it meets the requirements of the Manufacturer. All written certifications shall be delivered to Engineer before startup item is paid. All certifications shall be delivered concurrently with the performance of the work being certified and again at project completion in one single three-ring binder with a Table of Contents listing each certification contained in the binder.

A qualified and experienced technical representative of the manufacture shall provide operator training for Owner's personnel after system is operational. He shall be from the factory and shall have a minimum of 10 years experience with the equipment. If time and conditions permit, training may take place while manufacturer's representative is at the job site for inspection. All training shall occur at a time that is convenient for the Owner, operators, and Engineer. Training may be videotaped or otherwise recorded by the Owner, operator, or Engineer if they wish even if prior approval or arrangements have not been made. For operating facilities, it may be necessary to conduct the training in two separate independent sessions so that all operators can attend. If training is conducted before equipment fully and properly operational, it may be necessary to repeat the training after the equipment is fully and properly operational.

No warranty period shall begin prior to the final acceptance by the Owner.

All equipment shall be warranted by the manufacturer for a period of one (1) year from the date of final acceptance by the Owner. Longer warranty periods are required where noted in individual equipment specifications. Warranties shall be non-prorated. Manufacturer warranties shall in no way relieve the Contractor of his warranty requirements established by the Contract Documents.

**EQUIPMENT SPECIFICATION
FOR
SPIRAL CLARIFIER**

SECTION 2

1.0 DESCRIPTION

The Contractor shall furnish one (1) clarifier mechanism suitable for installation in the existing concrete basins as shown on the Contract Drawings. The existing concrete basins are 70 feet in diameter and have a floor slope of 1 inch per foot. The Contractor shall provide all labor, material, equipment, and incidentals to furnish, install and place into proper operating condition a spiral blade clarifier assembly, drive, and appurtenances in Clarifier #1 as shown on the Drawings or described in the specifications. The clarifier mechanism provided shall be manufactured by WesTech, Walker Process, OVIVO, or Evoqua.

Each mechanism shall be a center column supported center feed unit with peripheral effluent collection. A center drive mechanism shall be provided for rotation of the two rake arms with spiral type rake blades. The existing clarifier system removed is a Tow-Bro suction header system with a sludge well manifold. The new clarifier mechanisms shall be designed to retro-fit the existing concrete structure with a new spiral blade clarifier mechanism.

The equipment shall be designed to effectively settle mixed liquor suspended solids and scrape the settled solids from the 1" per foot sloped basin floor to the sludge withdrawal system as shown on the drawings and specified herein. The clarified effluent shall be collected uniformly by the existing peripheral launder. Surface scum shall be collected by the scum skimming equipment and discharged through the scum withdrawal pipe. The equipment manufacturer shall completely design and furnish a coordinated and complete engineered system to meet the conditions outlined in these specifications.

The clarifier assembly shall include all necessary equipment and appurtenances as designed by the clarifier manufacturer. Standard manufactured equipment shall be modified if necessary to meet all requirements of this specification. The equipment is designed around the manufacturers listed. The equipment furnished for the clarifier mechanism shall include but not be limited to: walkway with handrails, center drive assembly, center drive platform, center support column with inlet openings, energy dispersion well (EDI), feedwell, center cage, sludge collection arms with rake blades, surface scum skimming equipment, anchor bolts and assembly fasteners. All equipment (including, but not limited to, motors, drive equipment and components, electrical components, controls, and control panels) shall be designed for and have long trouble-free life and perform reliably and properly in the environment in which it will be installed.

In order to assure standardization, uniform quality, ease of maintenance, and minimal parts storage, all equipment called for under this Section shall be supplied by a single manufacturer (with the exception of FRP products) who, through the Contractor, shall be fully responsible for its design, coordination, and performance.

1.1 RELATED SPECIFICATIONS

This section contains references to other specifications. These references are not all inclusive and are provided as a convenience to the Supplier and the Contractor. All provisions of the Contract Specifications and Drawings apply whether or not they are referenced in this section. In case of conflicts between the requirements of this specification and other specification sections, the more stringent requirement, as determined solely by the Engineer and the Owner, shall prevail.

The “ALL EQUIPMENT” specification - Section 1 of the Equipment Specification - shall fully apply to the equipment in this specification section and to all equipment provided on this project. Refer to the “All Equipment” specification for additional requirements not contained in this specific equipment specification. Other related specification sections are as follows:

A. Painting

Submittals shall be in full accordance with the specifications herein and the General Specifications. The General Specifications contain further shop drawing and O&M Manual submittal requirements.

1.2 WARRANTY

Manufacturer shall expressly warrant the clarifier mechanism, drive, and all components to be free of defects in materials and workmanship for a period of five (5) years after the date of final acceptance.

1.3 PLAN REVIEW

Equipment supplier is cautioned that the requirements for this work are found in the Plans AND Specifications. Suppliers and Contractor shall thoroughly review Plans and Specifications and shall supply a complete system, fully functional in all respects for performance as intended. Supplier’s review of Plans and Specifications shall include Electrical and Control Drawings. I/O, control, and power requirements not shown in the Drawings shall be noted by the Supplier.

2.0 PROCESS REQUIREMENTS

Tank Diameter	70 feet
Tank Floor Slope	1” per foot
Side Water Depth	10.02 feet
Design average flow	1.5 MGD
Design Peak flow	4.0 MGD
Design average recycle flow	1.0 MGD
Design peak recycle flow	1.5 MGD
Drive 100% design torque	21,833 ft. lbs.
Drive momentary peak torque	43,660 ft. lbs.
Drive main gear diameter (min.)	31”

Mechanism rotation	Clockwise
Rake arm tip speed	8-10 ft./min.
Center Column Diameter (Min.)	20 inches
Feedwell Diameter (Min.)	15 feet
Feedwell Depth (Min.)	5 feet
Energy Dispersion Well Dia. (Min.)	7 feet
Energy Dispersion Well Depth (Min.)	2.5 feet
Scum Box Width	4 feet

No AGMA, life, structural, or any other type of calculation shall be based on a torque less than that stated above. The clarifier unit shall be capable of handling this AGMA rated torque for 24 hour per day operation for a minimum of 20 years. The clarifier unit shall also be capable of handling 130% of the above stated AGMA rated torque without causing problems or damage to the unit or components.

3.0 REFERENCES

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| A. | ASTM A-36 | American Society of Testing Materials Structural Steel Specifications. |
| B. | ASTM A-325 | American Society of Testing Materials Fastener Specifications. |
| C. | ASTM 304 | American Society of Testing Materials Bolt Specifications |
| D. | ASTM A-48 | American Society of Testing Materials Cast Iron Specifications. |
| E. | ASTM A-536 | American Society of Testing Materials Cast Iron Specifications. |
| F. | AISI 4142 | American Iron and Steel Institute Heat Treated Steel Specifications. |
| G. | AGMA | American Gear Manufacturers' Association Gear Ratings |
| H. | AWS | American Welding Society - Current Standards. |
| I. | AFBMA | Anti-friction Bearing Manufacturers' Association - Bearing Life Specifications. |
| J. | ASTM A283C | American Society of Testing Materials Steel Plate Specifications. |
| K. | NEMA | National Electrical Manufacturer's Association. |
| L. | Motor Design Standards and Standards for Control Enclosures. | |

4.0 QUALITY ASSURANCE

The clarifier equipment manufacturer shall modify his standard equipment to meet the minimum values specified for dimensions, design, and the intent of this specification.

No equipment shall be supplied by any manufacturer not regularly engaged in the manufacturing and production of hydraulic sludge removal clarifier equipment designed for use in wastewater treatment. The manufacturer shall have installed and had in satisfactory use equipment for a period of not less than ten (10) years and a minimum of ten (10) installations of same type (spiral blade) and similar diameter comparable to the units specified. At least one (1) of them shall be installed on a similar floor slope or less steep (flatter). The manufacturer

shall provide a list of these equipment installations in the submittal package.

Manufacturers shall show evidence of quality assurance in manufacturing and supplying equipment essential in details to the equipment herein specified.

All equipment shall be designed solely by the Manufacturer with safety features and guards as required to meet the standards of OSHA and applicable codes and shall allow for safe operation and maintenance.

5.0 CONTRACTORS SUBMITTALS

The contractor shall submit 4 hard copies and 1 pdf copy on a flash drive of complete shop drawings of all equipment furnished for this project as covered by these specifications. The contractor's submittal must include a certification that the submitted material describes exactly the equipment to be provided. Substitutions of equipment subsequent to submittal approval will not be accepted. Submittals shall contain additional information as required by the General Specifications.

The clarifier equipment manufacturer shall furnish as a minimum the following design and description information to establish compliance with these specifications:

1. Certified general arrangement and tank dimensional drawings.
2. Certificate of design stamped by a Registered Professional Engineer stating that the equipment to be provided for this project meets or exceeds all design requirements of these specifications. The certificate shall state the respective loads and design criteria. Complete process calculations substantiating the sizing of the center column and ports, energy dispersion well and outlets, and outer feedwell. Complete sludge transport calculations substantiating the rake blade design, rake tip speed, and floor slope. Calculations showing withdrawal rates and headlosses of the sludge withdrawal ring.
3. Drive mechanism rating calculations, stamped by a Registered Professional Engineer, verifying the compliance the AGMA rating of the drive gears and bearings with the specified continuous torque rating and bearing life rating.
4. Motor data and catalog information. Electrical drawings as applicable to the supply of the clarifier equipment manufacturer.
5. Catalog cut sheets for purchased sub-components.
6. A list of ten (10) minimum successfully operating clarifier installations that verify the experience of the manufacturer.

The submittal data shall be prepared, in its entirety, by the equipment manufacturer. Shop drawings prepared by the manufacturer's sales representative, fabrication shop, or other than the listed manufacturer shall not be acceptable.

6.0 OPERATION AND MAINTENANCE MANUALS

Operation and maintenance manuals shall be provided by the clarifier manufacturer at least two weeks prior to shipment of all major equipment components. The Contractor shall submit 4 hard copies and 1 pdf copy on a flash drive. Each manual shall be a bound, indexed binder with drawings and parts lists prepared specifically for this project rather

than general instructions that are not designed for this project.

As a minimum, the manual shall contain:

1. Certified as built drawings - General arrangement.
2. Certified as built drawings - General arrangement details.
3. Erection drawings.
4. A complete bill of materials for the equipment including the weights of all structural steel components.
5. Installation and maintenance instructions for the specific equipment including the erection sequence, maintenance and trouble-shooting check points, and complete lubrication procedures with recommended grades of lubricants.
6. Cut sheets for all equipment items purchased from sub-vendors.
7. A list of the clarifier manufacturer's recommended spare parts specifically denoting wear items, long delivery items, and all items convenient for stocking as optional replacement items.

7.0 FACTORY ASSEMBLY, TESTING, AND DELIVERY

To the maximum extent practical, the equipment assembly shall be factory assembled and tested to minimize the potential for occurrence of problems after delivery.

Fabricated assemblies shall be shipped in the largest sections permitted by carrier regulations, properly match-marked for ease of field erection. No field welding will be allowed.

All components shall be erected immediately upon receipt from the clarifier manufacturer or stored in strict conformance with storage recommendations provided by the clarifier manufacturer in the operations and maintenance manual.

The mechanism shall be lubricated in strict accordance with the instructions of the clarifier manufacturer's field service representative. The required lubricants shall be provided by the Contractor.

8.0 PRODUCT - GENERAL

Each clarifier mechanism shall be of the center-drive type, supported on a stationary influent column, with the flow entering at the bottom of the influent column and flowing upward to the inlet openings located at liquid level. The clarifier shall be designed to efficiently remove sludge uniformly from the bottom of the tank with 1" per foot slope. The new clarifier mechanism shall be designed to retro-fit the Tow-Bro suction header clarifier to be removed.

The structural steel shall conform to ASTM A36. Structural steel components shall have minimum thickness of 1/4". All welding shall conform to American Welding Society Standard AWS D1.1. Structural support members shall be shop welded for bolted field assembly. Sharp projections of cut or sheared edges of ferrous metals shall be ground to a radius by multiple passes of a power grinder as required to ensure satisfactory coating adhesion.

Components shall be designed so that stresses developed do not exceed allowable stresses, as defined by current AISC standards when designed for the AGMA rated torque. Panel lengths and member sizes shall be selected such that slenderness ratios do not exceed 200 for compression and 240 for tension. For strength, the controlling member force

shall be used to determine member size. Maximum deflection in a span under combined live and dead loads shall not exceed $L/360$.

9.0 CENTER DRIVE ASSEMBLY

The drive unit shall be designed and manufactured by the clarifier equipment supplier to ensure unit responsibility. The drive unit shall be designed for the continuous torque values previously listed. The continuous torque shall be defined as the minimum torque at which the drive mechanism may operate continuously 24 hours per day, 365 days per year, for 20 years, at the rake arm tip speed. The drive main bearing shall be designed for the total rotating mechanism loads with a minimum L-10 life of 50 years or 433,500 hours. The drive unit shall be capable of producing 21,833 ft·lbs continuous torque and withstanding 43,660 ft·lbs momentary peak torque while starting. The 31" (min.) drive main gear shall be designed to a minimum AGMA 5 rating when rated in accordance with the latest AGMA standard. Gear teeth shall be designed for proper load distribution and sharing. Stub tooth design and surface hardening of the main gear shall not be allowed.

All spur gearing shall be designed to the latest AGMA spur gear standard for strength and surface durability, based on a life of 175,000 hours. The design running torque rating of the drive gearing shall be based on the smaller of the strength and durability values determined from the above AGMA standard. To ensure safety and ease of maintenance, all components of the drive shall be direct coupled and enclosed within the gear housing.

The drive motor shall be a 1 HP motor (min.), squirrel cage, induction type, TEFC, ball bearing heavy duty unit of ample power for starting and continuously operating the mechanism without overload, with a minimum service factor of 1.15. Power supply to the equipment shall be 240/460-volt, 60 hertz, 3 phase. Motor shall be NEMA Design B employing Class F insulation designed for an ambient temperature of 40 degree C.

The center drive assembly shall be either a Precision Bearing type or a Spur Gear Cast type.

9.1 PRECISION BEARING DRIVE ASSEMBLY

The drive unit shall consist of the following items: Electric motor, speed reducer, overload protection, pinion gear, lower pinion bearing, internal main spur gear, cross contact precision main bearing, fabricated steel support base and cage adapter. The drive shall be mounted on the center column and support the entire rotating load of the mechanism. Drive shall be as manufactured and provided by WesTech.

The support base and cage adapter for the drive shall be of ASTM A36 fabricated steel to assure rigidity. The center cage shall be fastened to and supported from the cage adapter. The support base shall be designed to eliminate any condensate from coming in contact with the lower pinion bearing. The gear housing shall be designed so that the main bearing and gear teeth are submerged in oil or grease. It shall have an annular cavity for oil and/or grease and condensate storage. Any condensate that collects shall flow 180 degrees away from the lower pinion bearing. The oil bath or grease lubricant shall be enclosed and protected by a neoprene dust shield. A two" diameter "Bulls Eye" type oil sight glass, oil fill pipe, and drain line shall be provided for the reservoir. Lubrication fittings shall be readily accessible.

The pinion shall be heat treated alloy steel. A lower pinion bearing shall be provided to support the separating loads caused from the gear-to-pinion mesh. No overhung pinions shall be allowed on the speed reducing unit. The lower pinion bearing shall not be located below the turntable base.

An overload device shall be provided in a stainless steel, weatherproof enclosure. A minimum of three adjustable set points (for alarm and motor cutout and backup motor cutout) shall be actuated from the reaction torque due to a heavy sludge loading in the tank. The two set points shall be set at the following percentages of design running torque: a) Alarm shall be set at 100 percent; b) Motor cutout shall be set at 120 percent; c) Backup motor cutout shall be set at 140 percent. These three set points shall be factory calibrated and set. A torque indicator shall be provided and oriented so that it may be read from the walkway. It shall be calibrated from 0 to 160 percent of design running torque. A shear pin device shall also be provided, set for 130% of the AGMA torque mounted on the drive and easily accessible.

The support base shall have a maximum allowable deflection in accordance with the bearing manufacturer's specifications under load. The allowable tensile yield strength shall be a minimum of 45,000 psi.

The main internal gear shall be integral with the main bearing and be forged of alloy hardened steel. The drive bearing shall include fully contoured raceways hardened to a minimum 58-60 Rc and protected by a neoprene seal. Ball bearings shall be of high carbon chrome alloy 52100 steel running in fully contoured races, as part of a precision gear/bearing set.

The speed reducing unit shall consist of cycloidal, helical, or planetary speed reducers directly connected to a motor without the use of chains or v-belts and shall be keyed to the pinion. All speed reducers shall be fully enclosed and running in oil or grease.

All Gear reducers shall have fill line(s) and drain line(s) extended, valved, and capped to facilitate draining and adding oil.

The main ring gear of cycloidal drives shall be made of high carbon chromium bearing steel and be fixed to the drive casing. An eccentric bearing on the high-speed shaft shall roll cycloidal discs of the same material around the internal circumference of this main ring gear. The lobes of the cycloid disc shall engage successively with pins in the fixed ring gear. The movement of the cycloid discs shall be transmitted then by pins to the low speed shaft. Speed reducer efficiency shall be a minimum of 90% per reduction stage.

Speed reducer helical or planetary gearing shall be manufactured to AGMA standards and shall provide at least 95% power transmission efficiency per stage. The speed reducer shall have a minimum service factor of 1.25 based on the output torque rating of the drive.

The reducers shall be fitted with radial and thrust bearings of proper size for all mechanism loads and be grease. As a safety feature, the speed reducer shall be back drivable to release any stored energy as the result of an over torque condition.

9.2 SPUR GEAR CAST DRIVE ASSEMBLY

A drive design utilizing primary speed reducer, intermediate worm gear reducer, and final spur gear shall also be acceptable. The center drive mechanism shall consist of a motor driven primary gear reduction unit, steel roller chain drive, shear pin coupling, intermediate wormgear reduction unit, enclosed final gear reduction unit, and a torque limiting

device.

The intermediate wormgear reduction unit and the final gear reduction unit shall be the product of the Equipment Manufacturer. Drive shall be similar to ones manufactured and provided by Walker Process.

The primary gear reduction unit shall consist of a totally enclosed, horizontal type gearmotor or gear reducer with C-face mounted drive motor mounted on top of the intermediate wormgear housing. The primary gear reduction unit shall be a heavy-duty parallel shaft helical type. Gearmotors shall conform to ANSI/AGMA 6013-B16, "Standard for Industrial Enclosed Gear Drives," and shall have a service factor of 1.4 based upon the specified continuous running torque. Gear reducers with a C-face mounted drive motor shall conform to ANSI/AGMA 6013-B16, "Standard for Industrial Enclosed Gear Drives," and shall have a service factor of 1.25. All gearbox bearings shall be of the anti-friction type and running in oil in an aluminum, cast iron, or steel housing. The totally enclosed primary reduction unit shall operate on 3 phase, 60 hertz, 230/ 460-volt power source, and shall be at least 1 HP. The motor shall conform to NEMA specifications for AC motors and be designed for continuous operating in humid outdoor condition.

Power transmission between the primary gear reduction unit and the intermediate wormgear reduction unit shall be through a steel roller chain and steel sprocket assembly. The driven sprocket shall include a shear pin hub assembly to provide overload protection for the drive train. The chain drive shall be enclosed with a stainless steel chain guard meeting OSHA requirements. The shear pin shall be easily accessible by removal of the chain guard.

The intermediate wormgear reduction unit shall consist of a wormgear driven by an integral straddle mounted worm and shaft supported by heavy-duty rolling element bearings running in an oil bath and cast iron housing. Plain or sleeve type bearings will not be acceptable. All bearings shall have a minimum L10 life of 20 years, based on the continuous torque rating.

The integral worm and shaft shall be single piece and made from AISI 8620 alloy steel, carburized and ground, and shall have a case hardness of 55-60 Rc. The wormgear shall be centrifugally cast high strength manganese bronze conforming to ASTM B271, AMS 4862F, and ANSI/AGMA 2004-C08. The wormgear shall have a minimum hardness of 200 BHN. The wormgear hub shall be keyed to the pinion shaft. The intermediate wormgear housing shall be ASTM A48 Class 40 cast iron complete with seals, oil fill, oil level sight gauge and drain plugs. The intermediate wormgear housing shall have full 360 degree contact and support from the final gear housing.

Lubrication of the wormgear teeth and worm thread mesh, wormgear bearings, and worm shaft bearings shall be accomplished by means an oil bath. Grease lubrication will not be acceptable.

The final gear reduction unit shall consist of a pinion, internal split spur gear, anti-friction ball bearing assembly, and housing.

The pinion shall be AISI 4150 steel, AGMA Grade 2 minimum, heat treated to a hardness of 321 BHN and conform to ANSI/AGMA 2004-C08. The pinion shall be single piece extending from the wormgear to the spur gear and straddle mounted between anti-friction ball or roller bearings to maintain accurate pinion to spur gear alignment and contact. All bearings shall have a minimum L10 life of 20 years based on the continuous torque. Overhung/cantilevered pinions shall not be acceptable. The pinion shall be manufactured to have a minimum AGMA Quality Class 8 in conformance with ANSI/AGMA 2000-A88, "Gear

Classification and Inspection Handbook”, or Accuracy Level 9 in conformance with ANSI/AGMA 2015-1-A01.

The internal spur gear shall be ductile iron austenized, quenched & tempered, conforming to ASTM A536 grade 80-55-06 ductile cast iron with a micro-structure of fine tempered pearlite, heat-treated to a hardness of 220 BHN. The internal spur gear shall be manufactured to have a minimum AGMA Quality Class 6 in conformance with ANSI/AGMA 2000-A88 or Accuracy Level 11 in conformance with ANSI/AGMA 2015-1-A01. The spur gear shall have a minimum 31 inch pitch diameter and have a minimum 4.5 inch face width. The internal spur gear shall be of split construction to provide for replacement of main bearing balls and wire race inserts without removing the access walkway or other parts of the clarifier mechanism.

The internal spur gear shall be mounted on a large, full complement rolling element ball bearing assembly designed to support the entire rotating clarifier mechanism. The ball bearing assembly shall consist of minimum 1-1/4" diameter, Grade 50, AISI E52100 chrome alloy steel bearing balls, hardness 60-64 Rc, conforming to ANSI/ABMA/ISO 3290 (R2000), Rolling Bearings - Balls - Dimensions and Tolerances, running in an oil bath protected from contamination by a lower industrial felt seal and an upper stainless steel labyrinth dust shield. The balls shall bear both horizontally and vertically on four (4) renewable hardened alloy steel wire race inserts with a minimum dimension of 0.5 inches wide by 0.25 inches thick, pressed into the housing and the internal spur gear. The minimum ball race diameter shall be 46.5 inches to assure stability. The wire race inserts shall be heat-treated to a hardness of 43-48 Rc to avoid fatigue or stress cracking. The race wire inserts and bearing balls shall be designed for a minimum L10 life of 20 years. Bearing life calculations shall statistically combine all horizontal and vertical loads applied to the bearing assembly.

Bearing race wear shall be capable of being measured without disassembly of the bearing or drive and without dewatering the collector basin.

The ball bearing assembly shall be mounted in an ASTM A48 Class 40 cast iron housing. The housing shall be cast as a single piece to provide a leak proof enclosure. Seals or gaskets located below the oil level will not be acceptable. The base of the housing shall be mounted on the top flange of the stationary center column and designed to support the internal spur gear, the rotating clarifier mechanism, and one end of the access walkway. The housing shall be complete with seals, oil level dipstick, oil fill, and valve oil and condensation drains.

The upper dust and rain seal between the internal spur gear and the housing shall consist of a labyrinth seal fabricated from AISI 304 stainless steel with stainless steel seal clamps and EPDM rubber trim seal. The lower seal between the bottom of the internal spur gear and the housing shall be an industrial felt seal.

A positive means of removing condensation and contaminant from the lower pinion-bearing pocket shall be provided.

The overload protection system shall include a totally enclosed actuator and visual load indicator plainly showing the overload points. The overload alarm and shut-off system shall consist of two (2) SPDT micro switches, one to close an alarm circuit when the load reaches the specified alarm torque of the drive assembly, and one to cut power to the motor when the load reaches the specified cut-off torque. The micro switches shall be mounted in a watertight NEMA 4X Type 304 stainless steel housing and shall be actuated by the movement of the worm shaft in the intermediate wormgear speed reducer. An acrylic window shall be mounted on the overload enclosure to allow observation of the dial position.

10.0 WALKWAY ACCESS BRIDGE

The clarifier shall be provided with a 36" clear open width walkway extending from the tank wall to the center drive platform. The walkway shall be supported at the center by the drive unit and supported on the opposite end by the tank wall. As a minimum the walkway shall be designed to safely withstand all dead loads plus a live load of 150 pounds per linear foot with a maximum deflection of 1/360, over the entire span. The walkway shall consist of a structural steel beam sufficiently braced to resist the specified design loads. Provide handrails (42 inches high of double-row 1.5" diameter horizontal pipe) with 4" toe plate on both sides of the walkway. The walkway decking shall be 1-1/4" aluminum I-Bar grating.

A center drive operations platform shall be provided. The platform shall be large enough to allow 30 inches clearance outside of the center drive components and be no less than 8 feet square to provide clearance around the center assembly and drive control for maintenance and service. The drive platform shall be decked with 1/4" aluminum checkered floor plate and have sufficient structural steel supports to meet the specified design load conditions.

Provide handrails (42 inches high of double-row 1.5" diameter horizontal pipe) with 4" toe plate around the center drive platform. The walkway truss sides shall serve as the handrail and toe plate along both sides of the walkway.

Assemble bridge and structural members, etc., with stainless steel hardware.

11.0 CENTER CAGE AND RAKE ARMS

The center cage shall be of steel box truss construction, a minimum of 3'-0" square. It shall be provided with connections for the two (2) sludge removal arms and feedwell supports. The top of the cage shall be bolted to the main gear which shall rotate the cage with the attached arms and feedwell. The minimum angle size used for construction of the cage and rake arms shall be 2" x 2" x 1/4" members.

The clarifier mechanism shall include two (2) full radius sludge removal arms of steel truss construction with steel raking blades and adjustable 20 gauge 304 stainless steel squeegees. Squeegees shall be fastened to the rake blades with stainless steel fasteners. The rake blades shall provide complete raking of the basin floor twice per revolution.

The rake blades shall consist of a minimum 3/16" thick steel plate blade. The blades shall be constructed to a logarithmic spiral curve with a constant 30 degree angle of attack. Blade depth shall vary from a minimum of 8" at the tank periphery to a maximum of 24" at the tank center. Each rake truss support arm shall be provided with the necessary outrigger bracing and other blade support structures, to ensure that the complete blade can be properly located and adjusted in the field. The rake speed shall be sufficient to transport the necessary volume of sludge to the sludge outlet but shall not re-suspend settled sludge.

Blades shall properly convey settled sludge to the sludge outlet. Blades which move sludge away from the center column to the orifices of the sludge outlet shall also be provided.

The structural calculations for the rake arm shall include an analysis of the torsional loads from the spiral curve blade.

The cage and rake arms shall be designed such that calculated stresses do not exceed the AISC allowable stress at twice the drive 100% rating.

12.0 CENTER COLUMN

A stationary cylindrical steel center influent column of 1/4" minimum wall thickness shall be provided which shall serve as the influent pipe. One end shall have a support flange for bolting to the tank floor over the influent line, with a similar flange at the top for supporting the center drive assembly, mechanism, and bridge/walkway. The structure and anchor bolts shall provide adequate support for the entire mechanism dead load plus live loads and torque with an adequate factor of safety to eliminate excessive deflection or vibration. Suitable openings shall be provided in the upper portion of the column to allow unrestricted passage of the flow into the energy dispersion well.

The Clarifier manufacturer shall provide all anchor bolts, hardware, and epoxy grout as required to properly anchor new anchor bolts as required to secure influent column. Once center column is set and leveled, Contractor shall grout under base flange with non-shrink grout. Prior to the center column being grouted in place, the drive unit shall be installed, positioned, and leveled. The center pier shall serve as the influent pipe.

13.0 FEEDWELL

The feedwell shall be located outside of the energy dispersion well to diffuse the liquid into the tank without disturbance or formation of velocity currents. The depth of the feedwell shall be such as to provide proper detention time and an exit velocity at maximum flow that will not scour the settled sludge. The diameter, depth, detention time, and exit velocities shall be as recommended by the Clarifier manufacturer and shall match the process application calculations as evidenced by the required successful operating installations. The feedwell shall be fabricated out of 3/16" (minimum) steel plate with upper and lower reinforcing rim angles and stiffeners as required. The feedwell shall be supported by structural members attached to the center rotating cage. Large scum ports shall be provided equally spaced around the feedwell periphery to allow scum to exit from the feedwell at the water level. Scum ports shall be free to allow scum to escape with an angled baffle.

14.0 INNER DISPERSION WELL

An inner energy dispersion well shall be supported by the cage and be designed to diffuse the liquid into the larger feedwell in an impinged flow direction without excessive disturbance or formation of vertical velocity currents. The dispersion well diameter, depth, and detention time shall be as recommended by the Clarifier manufacturer and shall be included in the submittal with the design calculations and shall show proper process application as evidenced by the required successful operating installations. The rotating dispersion well shall be designed with a full bottom extending to within 1 inch of the center column. It shall include an upper rim angle for stiffness. Multiple, discharge ports shall be provided to induce impinged flow. The gates shall have a fixed bottom to prevent vertical currents as the flow exits the well. The dispersion well shall be fabricated out of not less than 3/16" thick steel plate with necessary stiffening angles.

15.0 SURFACE SCUM SKIMMING EQUIPMENT

Two (2) "full radius" skimmer assemblies shall be furnished as part of each

mechanism. The skimmer assemblies shall be arranged to sweep the surface of the settling zone automatically removing scum and floating material into a scum box mounted at the tank perimeter.

Each rotating skimmer shall consist of a vertical steel plate supported from the rake arm and extending at a tangent from the feedwell to a recessed adjustable pivoting aluminum scum scraper with neoprene wipers on bottom and both sides.

The scum box shall be 4 feet wide and be supported from the tank wall and connected to the scum line through an existing 6" diameter scum pipe. The box shall be made of welded 1/4" steel plate, to serve as an integral section of the tank's scum baffle. The assembly shall have a scum trough, vertical steel sides (inner and outer radius baffle), sloping approach ramp (beach plate), hopper, 6" diameter straight pipe stub for connection of a flexible connector or flanged to interface with scum outlet piping (outlet piping and flexible connector to be furnished as part of Clarifier.) See Drawings for additional outlet requirements.

Each scum scraper shall be hinged and maintain contact with the scum baffle as it travels around the tank periphery. Upon approaching the scum box ramp, it shall trap the scum in an enclosure consisting of the scum box ramp as the bottom, and baffle and scum scraper as three sides. The box ramp shall begin at a point 5" below the maximum water elevation. The inner radius baffle should extend 9" below and 3" above maximum water level and shall run from the trough to the end of the submerged shelf. The trapped scum shall be carried up the ramp and into the scum trough. The scraper blade shall have a neoprene wearing strip on its outer end which contacts the scum baffle and a neoprene strip on its lower and inner edge. The neoprene wipers shall be a minimum 1/4-inch thickness. All springs, pivot points and threaded fasteners shall be constructed of 18-8 stainless steel.

A threaded bung hole shall be provided in the end of the scum box as indicated on the drawings for a spray nozzle connection. The clarifier manufacturer shall provide this connection point as shown. See Drawings for requirements.

Coordinate the skimmer scum box, etc., with the scum baffles and effluent (launder) trough covers to insure compatibility.

16.0 SLUDGE WITHDRAWAL RING OR MANIFOLD

16.1 SLUDGE WITHDRAWAL RING

The existing tank floor slope and sludge withdrawal ring design shall be verified by the clarifier equipment manufacturer. The sludge withdrawal ring shall be located and sized to prevent short-circuiting of the influent to the underflow. It shall be placed at a point of high sludge concentration. It shall be rectangular in cross section as shown on the drawings and shall remove sludge uniformly around the center of the tank. The sludge ring shall be designed to maintain a uniform velocity throughout the ring to prevent settling with less than 1' of head of headloss.

The sludge withdrawal ring shall surround the center column and shall be provided with a RAS port connection. The sludge ring shall include appropriate anchorage as recommended by the Clarifier manufacturer. Equally spaced orifices shall be cut into the outer ring wall. The orifices shall be sized to avoid plugging. The outer ring wall shall be at a constant radius.

16.2 SLUDGE WITHDRAWAL MANIFOLD

The existing tank floor slope and sludge manifold design shall be verified by the clarifier equipment manufacturer. The sludge manifold shall be rectangular in cross section as shown on the drawings and shall remove sludge uniformly around the center of the tank. The sludge manifold shall surround the center column and be large enough to encompass the RAS port in the center pier.

The sludge manifold assembly shall be provided consisting of a rotating manifold, a fixed seal plate, and seals between the manifold, center pier, and seal plate. The rotating manifold shall be minimum 1/4" thick material and be attached to and supported from the drive cage and shall contain sludge ports in the vertical side wall positioned in front of each spiral flight. The seal plate shall be a minimum of 4" wide x 3/8" thick and shall be anchored to the tank floor. Neoprene seals shall be minimum 1/4" thick and shall be replaceable.

17.0 EFFLUENT WEIR, SCUM BAFFLE, AND STAMFORD BAFFLE

The existing weirs and baffles are to remain as is and be reused as indicated in the Contract Drawings.

The Stamford baffles are specified under another Specification section. The Clarifier manufacturer shall review drawings and baffle specifications and coordinate clarifier equipment layout and dimensions with weir/baffle dimensions to prevent any conflicts.

18.0 ANCHOR BOLTS

All equipment anchor bolts, fasteners, hardware (nuts, washers, etc.), etc. shall be minimum 1/2" diameter and be made of 316 stainless-steel. The equipment manufacturer/supplier shall furnish all anchor bolts, fasteners, hardware (nuts, washers, etc.), etc. required for the erection or installation of the equipment. The equipment manufacturer shall furnish all templates, shields, etc. for accurately setting the center pier anchors. The clarifier manufacturer shall provide all anchor bolts, hardware, etc. and all epoxy grout required for proper installation.

19.0 PAINTING AND SURFACE PREPARATION

Electric motors, speed reducers, and other self-contained or enclosed components shall have the original manufacturer's enamel finish suitable for the environment to which it will be exposed (harsh sewer environment). The finish shall be compatible with the top-coat to be field applied.

Apply rust preventative compound to all machined, polished, and nonferrous surfaces which are not to be painted.

All non-submerged steel and all submerged steel shall be prepared and primed in accordance with the Painting Specifications. See the Painting Specifications for all requirements. Contractor shall complete all intermediate and final painting on the Clarifier mechanism once it is delivered to the jobsite.

20.0 CLARIFIER CONTROL PANEL

The Clarifier manufacturer/supplier shall furnish and install one per Clarifier mechanism (1 total) prewired, UL listed clarifier control panel for the clarifier assembly for 460V, 3 phase 60 Hz, 4 wire power supply. The clarifier control panel shall be designed and provided by the clarifier manufacturer. The clarifier manufacturer shall see clarifier schematic and other panel requirements in the Contract Drawings. The panel shall include, but not be limited to, the following: NEMA 4X Stainless Steel freestanding (or handrail mounted) enclosure with 3 point latch system (or quick release clasp system) for easy door operation; all NEMA rated components; on/off switch, stop, test, and silence pushbuttons; a panel mounted alarm beacon; control logic for pre-torque and torque shutoff limit switches (80% = alarm, 100% = alarm and shutdown); and a discrete general alarm output to SCADA which covers all alarms mentioned above. The panel shall meet all NEC requirements and be properly labeled with all danger, warning, etc. labels.

The control panel shall be located on the center platform of the clarifier. Manufacturer shall ensure proper clearances in front of and around the control panel. Center platform shall be conservatively sized for ample clearances.

21.0 SPRAY NOZZLE SYSTEM

The Clarifier manufacturer/Contractor shall be responsible for providing the spray nozzle system along the clarifier bridge and center platform. The minimum piping requirements shall be as shown on the Contract Drawings. It is anticipated that the spray nozzle system will be supplied water at a flowrate range of 80-100 GPM at a pressure range of 40-70 PSI.

The spray nozzles shall be stainless steel and a non-clogging design. The spray nozzles located in the center feed well shall be selected to produce a 90 degree spray angle such that four nozzles produce a 360 degree spray pattern for forcing scum radially outward towards the scum ports in the feedwell. The spray nozzles located along the bridge shall be selected to promote radial scum movement outward along the scum arm to the scum trough.

22.0 SPARE PARTS

The intent of this specification is to provide uninterrupted operation for a minimum period of two (2) years. To meet this objective the clarifier manufacturer shall supply any and all spare parts, excluding lubricants, that are required to meet this time frame. Provide any special tools required to install, operate, or maintain the equipment.

As a minimum provide the following spare parts:

1. Four (4) complete wearing strip assemblies for the scum scraper
2. Two (2) sets of seals for the center drive assembly
3. Two (2) oil sight glasses
4. Four (4) spare shear pins for clarifier drive (if used)
5. Two (2) seals for each seal that is located on the sludge collection drum (if any)

All spare parts shall be in clearly and prominently labeled boxes.

23.0

EXECUTION

The equipment and accessories shall be erected in strict accordance with the drawings, approved shop drawings, and the manufacturer's installation instructions and recommendations. All components shall be erected immediately upon receipt from the clarifier manufacturer or stored in strict conformance with storage recommendations provided by the clarifier manufacturer in the operations and maintenance manual. All equipment shall be properly maintained by the Contractor during storage. The mechanism shall be lubricated in strict accordance with the instructions of the clarifier manufacturer's field service representative. The required lubricants shall be provided by the Contractor.

The Contractor shall touch-up all shipping damage to the paint as soon as the equipment arrives on the job site. All finish field preparation and painting shall be performed by the Contractor as specified in the Painting Specification.

Prior to assembly all stainless steel bolts and nut threads shall be coated with a non-seizing compound by the Contractor.

The equipment manufacturer shall provide a service representative properly trained in inspection and operation of the mechanism to approve the installation, certify that the torque settings of the drive overload protection device are correct, perform the torque test and instruct the owner's personnel on maintenance and operation. This service shall be in the form of one (1) trip to the site and three (3), eight (8) hour days of service. If additional service is required due to the mechanisms not being fully operational, at the time of service requested by the Contractor, the additional service days will be at the Contractor's expense. The manufacturer's representative shall be from the factory and shall have a minimum of 5 years experience starting up such equipment.

After the Contractor has installed the clarifier equipment and it is capable of being operated, the equipment manufacturer shall furnish a qualified representative to inspect the equipment and to supervise field testing and start-up. The Contractor shall make adjustments including but not limited to level, plumbness, and alignment, provide lubricants, lubricate all equipment, and adjust all controls, equipment, and appurtenances in accordance with the manufacturer's instructions and leave equipment in proper working condition. Where required for proper installation, the Contractor shall install non-shrink grout. The Contractor shall demonstrate all features of the equipment and demonstrate that the equipment operates properly under all types of conditions. The testing shall also include operation from local and remote control stations, and local and remote alarm simulation.

The entire clarifier mechanism shall be field torque tested. The purpose of the torque test is to verify the structural integrity of the mechanism structural steel design and center drive unit. The testing shall be carried out under the supervision of the equipment manufacturer's representative and as approved by the Engineer before the mechanisms are accepted and placed into operation.

The torque test shall consist of securing the rake arms by cables to anchor bolts installed by the contractor in the tank floor at locations specified by the equipment manufacturer. A load shall be applied to the scraper arm by means of a ratchet lever and cylinder connected to the cable assembly.

The magnitude of the applied load shall be measured by calculating the torque from the distance of the line of action of each cable to the center line of the mechanism. Readings shall be taken at 80 %, 100 %, and 120 % of the drive design torque.

The manufacturer's service representative shall verify that the alarm, motor cut-

out, and backup safety motor cut-out switches are properly set and are in proper operation to protect the clarifier mechanism as specified. Also demonstrate the proper operation of the loss of motion sensor. Repeat all test to verify results as needed.

The manufacturer's representative/Contractor shall operate the clarifier mechanism in a dry tank for a minimum of 4 hours prior to allowing flow to enter the clarifier basin. There shall be no binding, jerky, or unusual motion exhibited during this run-in-period. Motor amperage shall be checked at least hourly for any unusual or higher than normal reading. After the unit has successfully passed this initial test, flow shall be introduced into the tank and the same 4-hour observation test run. If the unit should fail under any of these conditions, the test shall be halted, and the problem corrected. If, after several attempts, the unit does not successfully pass the field test, the faulty portion of the equipment shall be repaired or replaced at no additional cost to the Owner and the test re-run.

After testing, the Contractor, in conjunction with the manufacturer's representative, shall make whatever adjustments are required for the anticipated operating conditions. The Contractor shall plumb, adjust for true plane of rotation, grout beneath center column, sludge well/ring, and drive unit in accordance with the Manufacturer's recommendations.

The Manufacturer's representative shall sign a Certificate of Compliance on a form provided by the Engineer stating that he has thoroughly reviewed the equipment and its installation, and it meets the requirements of the Manufacturer.

Provide operator training for Owner's personnel after system is operational. If time and conditions permit, training may take place while manufacturer's representative is at the job site for inspection.

**EQUIPMENT SPECIFICATION
FOR
STAMFORD DENSITY CURRENT BAFFLE**

SECTION 3

1.0 GENERAL

1.1 SUBMITTALS

Shop Drawings

1. Manufacturer's catalog information, descriptive literature, specifications, and identification of materials of construction, including resins and glass fiber content and layout for FRP constructions.
2. Detailed drawings showing equipment fabrication dimensional, method of attachment including number, locations and size of fasteners and weights of fabrications.
3. Manufacturer's recommended baffle dimension, deflection angle and location for each application.
4. See General Specifications for additional requirements.
5. Coordinate with drawings.

Quality Control Submittals

1. Manufacturer's Certificate of Compliance.
2. Special shipping, storage and protection and handling instructions.
3. Manufacturer's written/printed installation instructions.
4. A list of three installations of comparable size in operation for at least three years.
5. Certified test reports of the physical and mechanical properties of the product. Each panel shall have the following minimum physical properties:

<u>Property</u>	<u>Test</u>	<u>Minimum Value</u>
Tensile Strength	ASTM D-638	10,000 psi
Flexural Strength	ASTM D-790	16,000 psi
Flexural Modulus	ASTM D-790	1.0 x 10 ⁶ psi
Barcol Hardness	ASTM D-2853	40
Notched Izod	ASTM D-256	12 ft.-lbs/in
Water Absorption	ASTM D-570	0.2%

1.2 WARRANTY

Manufacturer shall warrant the Density Current Baffle to be free of defects in materials and workmanship for a period of five years after the date of Substantial Completion.

1.3 COORDINATION

Manufacturer shall coordinate the Density Current Baffle design and installation requirements with the Contract Drawings, clarifier mechanism, scum box and launder effluent channel configurations.

1.4 RELATED SPECIFICATIONS

This section contains references to other specifications. These references are not all inclusive and are provided as a convenience to the Supplier and the Contractor. All provisions of the Contract Specifications and Drawings apply whether or not they are referenced in this section. In case of conflicts between the requirements of this specification and other specification sections, the more stringent requirement, as determined solely by the Engineer and the Owner, shall prevail.

The “ALL EQUIPMENT” specification - Section 1 of the Equipment Specification - shall fully apply to the equipment in this specification section and to all equipment provided on this project. Refer to the “All Equipment” specification for additional requirements not contained in this specific equipment specification.

1.5 PLAN REVIEW

Equipment supplier is cautioned that the requirements for this work are found in the Plans AND Specifications. Suppliers and Contractor shall thoroughly review Plans and Specifications and shall supply a complete system, fully functional in all respects for performance as intended.

2.0 PRODUCTS

2.1 MANUFACTURERS

Materials, equipment, and components in this section shall be the products of: NEFCO Incorporated, MFG Construction and Water Products, EDG Engineering, Inc., Midwestern Fabricators, or approved equal.

2.2 DENSITY CURRENT BAFFLES

The Density Current Baffle System shall consist of a series of baffle panels that are attached to the wall of the clarifier to form an inclined, shelf-like surface around the entire inner periphery of the tank. Each panel shall be molded of corrosion-resistant, UV-treated fiberglass. The panel shall be a maximum of 8 feet in length and shall be curved to follow the curvature of the clarifier tank. The width, inclination angle and mounting location of the baffle shall be determined based upon the clarifier configuration in order to provide optimum baffle performance. The panels shall be designed such that adjacent panels fit together without overlapping or cutting, and the completed baffle when installed, has a well-engineered and professional appearance.

In tanks with outboard launders, the inclination angle of the baffle shall be 30 degrees as measured from the horizontal and the horizontal projection of the baffle shall be determined by the formula

➤ Horizontal Projection = 18" + a (Diameter - 30), where $a = 0.3$

Provision shall be made to attach the panels to the clarifier wall and support them at the proper angle using a triangular panel bracket. The panel and bracket shall be molded as an integral part of each panel, forming a baffle module, or separate panels and brackets may be supplied. If the panel and bracket are molded as an integral unit with adequate stiffeners, only one bracket is required per panel. A specially formed "free-end" bracket shall be provided to support the free end of the last panel where the run of panels is interrupted by an obstruction. Panels may be cut as required to fit around obstructions.

In tanks with inboard launders, the baffle may be designed to fasten to the trough face at the lower inboard corner of the trough. In this case the baffle bracket will extend beneath the trough and fasten to the underside of the trough.

If separate panels and brackets are supplied, the panels shall be molded of fiberglass and shall meet the specifications of this section. The brackets shall be fabricated of 3" x 3" x 1/4" stainless steel angle and shall be triangular in shape, with the corners welded. Brackets shall be installed at a maximum spacing of four (4) feet. The panels shall be fastened to the brackets with stainless steel nuts, bolts, and lock washers every 8 inches.

A method of interconnecting adjacent panels shall be provided such that the entire assembly forms a rigid structure capable of supporting its own weight plus snow and wind loads in the event the tank is out of service. The baffle shall also be designed to withstand a buoyant force load equal to the weight of the water displaced from the volume beneath the baffle. The angled working surface of each baffle shall be sufficient in pitch and width to divert the flow and to create a self-cleaning action of the baffle itself. Provision shall also be made to vent gases which may form beneath the baffle through 2" radius half round openings molded into the panel at its highest point.

2.3 MATERIALS

Each baffle panel shall be molded of fiberglass-reinforced plastic. The resins and fiberglass reinforcing material shall be consistent with the environmental conditions and structural requirements.

The resin shall be an isophthalic polyester resin with corrosion-resistant properties, Corezyn COR75-AQ-010 or equivalent, suitable for use in submerged waste treatment applications. The resin shall not contain fillers except as required for viscosity control. For viscosity control, a thixotropic agent up to 5% by weight may be added to the resin. The resin shall be treated to provide UV suppression.

Glass reinforcement shall consist of "chemically bonded surfacing mat and chopped strand roving. Surfacing mat shall be Type C veil. The glass reinforcement shall be 357-211 PLN CTC chopped strand roving or equivalent. The glass content of the finished laminate shall not be less than 30% by weight. The nominal thickness of each baffle panel shall be 1/4" \pm 1/16 inch thick with resin rich surfaces and edges to prevent migration of moisture and fiber "blooming." The baffle shall be black in color.

The upper surface of each panel shall be mold smooth and no glass fibers shall be exposed. Laminations shall be dense and free of voids, dry spots, cracks, or crazes. The upper surface of the baffle shall be reinforced with one layer of surfacing veil followed by 2 ounces or more of chopped strand roving. In addition, the vertical mounting flange (return

flange on launder mount applications) shall be reinforced with one layer of 24 oz woven roving.

No other glass product is permitted between these layers. All factory-trimmed edges shall be "hot coated" with resin to prevent wicking.

3.0 EXECUTION

3.1 INSTALLATION

The installation contractor shall field verify existing dimensions and install the baffle in accordance with the contract drawings, approved shop drawings and manufacturer's recommendations. Mounting holes shall be factory drilled. Field cutting of baffle panels will be allowed to complete the structure and accommodate in-tank obstructions. All field cut or drilled edges shall be coated per the manufacturer's recommendations to prevent fiber blooming or fraying. All of the fasteners required for installation shall be supplied by the baffle manufacturer. The baffle panels shall be attached to the wall using 3/8" x 3-3/4" concrete expansion anchors with oversized 1/8" x 2-1/4" stainless steel washers, and hex nuts, adjacent baffle panels are fastened together using 1/4" bolts, 2 flat washers, lock washer, and hex nut. All of the installation fasteners shall be stainless steel.

The density current baffle shall extend completely around the tank and shall be level, rigid and free of sway that could work anchors loose or cause undue wear.

**EQUIPMENT SPECIFICATION
FOR
LAUNDER COVERS (ALTERNATE ADDER)**

SECTION 4

1.0 GENERAL

1.1 SUBMITTALS

Shop Drawings

1. Manufacturer's catalog information, descriptive literature, specifications, and identification of materials of construction, including resins and glass fiber content and layout for FRP constructions.
2. Detailed drawings showing equipment fabrication, dimensions, method of attachment including number, locations and size of fasteners and weights of fabrications.
3. Manufacturer's recommended Cover dimensions, mounting configuration and location for each application.
4. See General Specifications for additional requirements.
5. Coordinate with drawings.

Quality Control Submittals

1. Manufacturer's Certificate of Compliance.
2. Special shipping, storage and protection and handling instructions.
3. Manufacturer's written/printed installation instructions.
4. A list of ten installations of comparable size in operation for at least five years.
5. Certified test reports of the physical and mechanical properties of the product. Each panel shall have the following minimum physical properties:

<u>Property</u>	<u>Test</u>	<u>Minimum Value</u>
Tensile Strength	ASTM D-638	10,000 psi
Flexural Strength	ASTM D-790	16,000 psi
Flexural Modulus	ASTM D-790	1.0 x 10 ⁶ psi
Barcol Hardness	ASTM D-2853	40
Notched Izod	ASTM D-256	12 ft.-lbs/in
Water Absorption	ASTM D-570	0.2%

1.2 WARRANTY

Manufacturer shall expressly warrant the Launder Cover System to be free of defects in materials and workmanship for a period of one year after the date of final acceptance.

1.3 COORDINATION

Manufacturer shall coordinate the Launder Cover design and installation requirements with Contract Drawings, the clarifier mechanism, scum box, launder effluent channel configuration (including access ladders), effluent box (including pump and hoist if shown) and other clarifier appurtenances.

1.4 RELATED SPECIFICATIONS

This section contains references to other specifications. These references are not all inclusive and are provided as a convenience to the Supplier and the Contractor. All provisions of the Contract Specifications and Drawings apply whether or not they are referenced in this section. In case of conflicts between the requirements of this specification and other specification sections, the more stringent requirement, as determined solely by the Engineer and the Owner, shall prevail.

The "ALL EQUIPMENT" specification - Section 1 of the Equipment Specification - shall fully apply to the equipment in this specification section and to all equipment provided on this project. Refer to the "All Equipment" specification for additional requirements not contained in this specific equipment specification.

Submittals shall be in full accordance with the General Specifications.

1.5 PLAN REVIEW

Equipment supplier is cautioned that the requirements for this work are found in the Plans AND Specifications. Suppliers and Contractor shall thoroughly review Plans and Specifications and shall design and supply a complete system, fully functional in all respects for performance as intended.

2.0 PRODUCTS

2.1 MANUFACTURERS

Materials, equipment, and components in this section shall be the products of NEFCO Incorporated, 4362 Northlake Boulevard, Palm Beach Gardens, FL 33420-0493 or approved equal.

2.2 DESIGN

The manufacturer shall design the Launder Cover System to meet all the requirements of the plans and specifications. The design shall be a special or custom design if needed.

The Launder Cover shall consist of a system of molded fiberglass panels that are attached together to form a continuous cover over the launder trough, weir and scum baffle within the treatment tank. The Cover shall be designed and manufactured to inhibit incident sunlight from striking the surfaces of the launder and weir and thereby prevent algae growth. Each Cover section shall be molded of UV-protected fiberglass and shall be opaque to sunlight and thereby prevent algae growth. Individual sections shall be a minimum of four feet in length (unless shorter sections are desirable to facilitate opening and closing the covers while standing

in the trough) and curved to follow the curvature of the tank. The Cover shall extend over the trough and weir as far as possible and may extend to a point immediately inside the scum baffle so long as the Cover does not interfere with the sweep arm. The Cover shall be designed such that adjacent panels fit together properly and the completed Cover, when installed, forms a rigid structure, and has a well-engineered and professional appearance.

The Cover shall be designed to open away from the operator and toward the center of the tank. Each Cover segment shall consist of two sections, a fixed Mounting Section and a hinged Cover Section connected by a continuous stainless steel hinge. The Mounting Section shall provide a rigid mount for the Cover and is fastened to the weir wall with stainless steel brackets as shown in the contract drawings. The Mounting Section extends inward to a point just inboard the scum baffle. The hinged Cover Section extends outward toward the tank wall and swings open to allow inspection and maintenance of the launder and weir. In the closed position, the Cover Section rests on an FRP support flange attached to the inner wall of the tank.

Provision shall be made to lock the Cover in the closed position for safety and security. This shall be accomplished by means of an easily operated latch mechanism that secures the hinged Cover Section to the support flange. Handles or lift rings may also be required for some panels. A means of limiting the travel of the hinged Cover section, in the form of a restraint cable or tether, may also be provided to protect against damage. If tethers or similar devices are needed, they shall not interfere with the operator walking around the circumference of the clarifier while in the trough. Covers with inspection hatches or cleanout doors are unacceptable.

Provision shall be made to support the Cover in such a manner that the panels are held securely in place, with the panels hinged to provide access to the launder and weir for inspection and maintenance. Cover supports that cantilever from the outer effluent launder wall without support at the weir wall are unacceptable. Neither the Cover nor the means used to support it shall interfere with effluent flow over the weir or within the trough. Cover supports and other appurtenances shall not impede personnel from entering and traversing the launder.

Where the circumference of the trough is interrupted by a bridge-support or another obstacle, a specially designed operable panel(s) shall be installed over the trough beneath the support such that the surface of the Cover is continuous around the entire tank. Alternatively, vertical panels that are operable and can be easily removed may be installed on both sides of the bridge supports to block out sunlight.

The Cover system shall be designed to withstand common wind and snow loads but shall not be intended as a "walk-on" Cover designed to support the weight of plant personnel. Adequate stiffeners shall be integral to each panel, but panels reinforced with balsa or foam cores are not acceptable.

2.3 MATERIALS

Each Cover panel shall be molded of fiberglass, reinforced plastics. The resins and fiberglass reinforcing materials shall be consistent with the environmental conditions and conditions requirements of the application.

The resin shall be an industrial quality, isophthalic polyester resin with UV suppression additives, Corezyn COR75-AQ-010, or equivalent. The resin shall be pigmented to ensure that the resulting part is opaque. The glass reinforcement shall be chopped strand

roving, 357-211 PLN CTC, or equivalent, with a minimum 1/2-inch strand length. Additional reinforcement in the form of stiffening ribs shall be added when necessary. The glass content of the finished laminate shall be not less than 30% by weight. The nominal thickness of each panel shall be 1/4 inch. The laminate shall consist of a 20 mil outer layer of marine quality white gelcoat, followed by chopped strand roving. The lamination shall be dense free of voids, dry spots cracks or crazes. All factory-trimmed edges shall be sanded and sealed. The finished laminate shall have a smooth, even appearance.

Fasteners, handles, hinges, and latches, etc. shall be stainless steel. The weir wall mounting brackets shall be Stainless Steel, FRP or a combination of the two.

The latch/handle shall be a spring-loaded mechanism with a positive detent positioned to indicate, the closed/locked position of the handle. The latch is activated by pressing down on the spring-loaded handle and turning it. The latches must be convenient to reach and operate.

The tether or restraint cable shall consist of a length of stainless steel cable secured to the tank wall and the hinged Cover Section by means of stainless steel eyebolts. The length of the cable is selected to limit the travel of the Cover. The tether, if required, shall not interfere with the operator walking in the effluent launder or make opening and closing cover section inconvenient.

3.0 EXECUTION

3.1 INSTALLATION

The Cover sections shall be mounted to the weir wall on stainless steel or FRP brackets. The free end of each Cover panel shall be supported at the outer tank wall by an FRP support flange that attaches to the entire periphery of the tank.

The installation contractor shall install the Cover in accordance with the contract drawings, manufacturing drawings and manufacturer's recommendations. Limited field cutting of panels shall be allowed to complete the structure and accommodate in-tank obstructions. All cut ends shall be dressed as per the manufacturer's recommendations.

All of the fasteners and brackets required for the installation shall be stainless steel and shall be supplied by the Cover manufacturer. The support flange and weir wall brackets are installed using 3/8" x 3-3/4" expansion anchors with flat washers, lock washers and hex nuts.